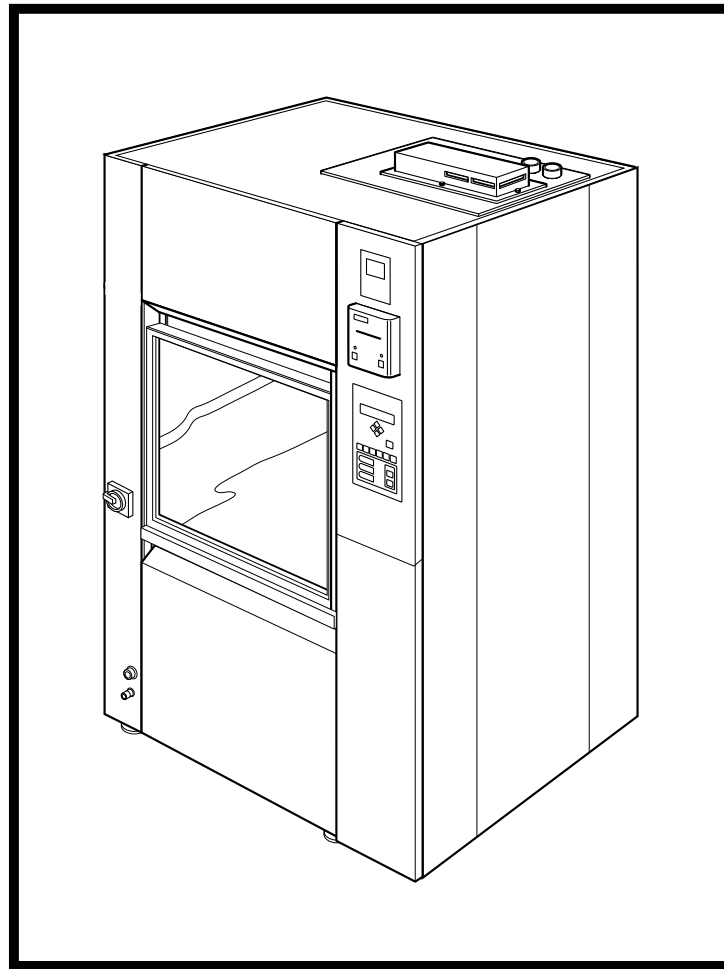
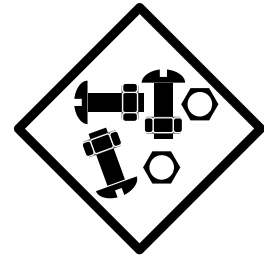


SERVICE INSTRUCTIONS



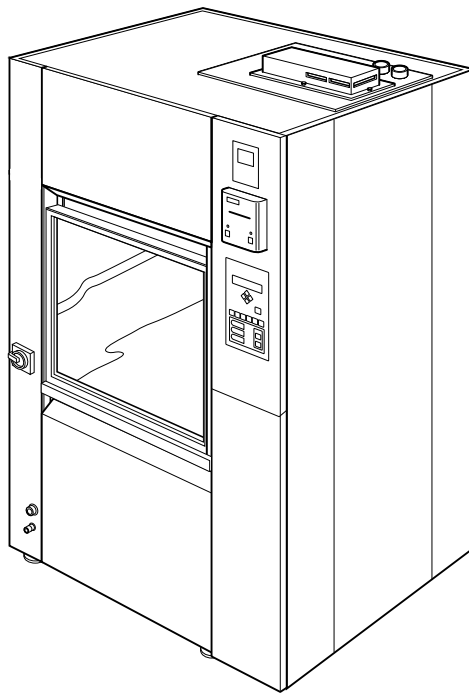
Washer disinfector Getinge 8666/8668

Mfg. no. SEV0320078-
5015108-00





Service instruction Getinge 8666/8668



We reserve the right to change without prior notice,
our design and material specifications

5015108-00 2004-03-01

Safety regulations

Technical data

Description

***Software description and
settings***

Preventive maintenance

***Fault indications and
troubleshooting***

Repair and adjustment

Safety regulations

CONTENTS

Safety regulations	3
General safety regulations	3
Product liability	3
Isolator switch	3
Attention symbols	3

Safety regulations

This machine is designed with a number of built-in safety devices. To avoid injury, it is highly important not to bypass or disable these safety devices.

General safety regulations

- Take care when handling the chemical agent used in the machine. Read the details on the container or contact the manufacturer:
 - if agent comes into contact with the operator's eyes or skin or if the vapours are breathed in, etc.
 - about storing the agent and disposing of empty containers.
- The machine must be connected in accordance with the installation instructions.
- Only adults may operate the machine.
- Installation and service work must be done by personnel trained for this machine.
- Never bypass the door switch of the machine.
- Leakage in the system, due to a worn door seal for example, must be dealt with immediately.
- Before repair or service work is done, the personnel concerned must study the relevant documentation and service manuals.
- Before welding begins on or close to the machine, all wiring connected by plugs and sockets must be disconnected from all circuit boards in the machine.
- Do not hose down the machine with water.
- Take care when using corrosive detergent .
- Take care with hot water and steam.
- Run a process before starting servicing. If this is not possible, disinfect the machine with disinfectant before starting servicing.

Product liability

Modifications to the equipment made without the approval of the manufacturer, or incorrect use, invalidate the manufacturer's product liability.

Isolating device

The machine must always be fitted with a separate isolating device in the power supply, mounted in an easily accessible position on the wall.

Attention symbols

Some of the warnings, instructions and advice in this manual are so important that we used the following special symbols to draw attention to them. The symbols and designs used are:



This symbol indicates a warning in the text of the manual. It warns of a hazard that may lead to more or less severe injury and in certain cases mortal danger.

It also highlights warnings to avoid damage to equipment.



This symbol highlights a warning in the text of the manual dealing with the handling of components sensitive to ESD. The hazard that is warns about may result in damage to hardware and/or circuit boards.

Technical data

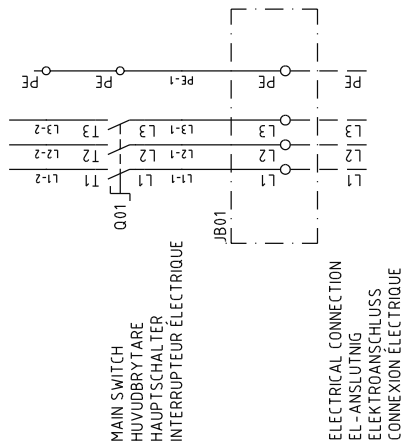
Contents

Technical data _____	3
Alternative connection arrangements _____	4

Technical data

Weight incl. water	
chamber depth 720 mm	385-525kg
chamber depth 800 mm	385-525kg
Width	1110 mm
Depth	
chamber depth 720 mm	910 mm
chamber depth 800 mm	990 mm
Height	1870 mm
Environmental requirements:	
Air humidity max 80% at 31 °C	
Room temperature	5 - 40 °C
Water consumption	
chamber depth 720 mm	≥ 33 litres/phase
chamber depth 800 mm	≥ 40 litres/phase
Cold water	
Connection	20(3/4") mm
Pressure	100-800 kPa
Flow	30 l/min
Hot water	
Temperature	45-60 °C
Connection	20(3/4") mm
Pressure	100-800 kPa
Flow	30 l/min
Dist./de-ion. water	
Connection	20(3/4") mm
Pressure	100-800 kPa (if the pressure is below 50 kPa a separate feed pump must be connected)
Flow	30 l/min
Condensate	15(1/2") mm
Steam	
Connection	15(1/2") mm
Pressure	300-500 kPa
Consumption	approx 1.0 kg/min at 300 kPa
Waste	ø 50 (2") mm
Capacity	50 l/min
Evacuation air	
Air quantity	approx 350 m³/h
Electrical connection	See Alternative connection arrangements
Compressed air connection	4-8 bar
Max outside temperature	50 °C
Sound level	60 dB (A)

Alternative connection arrangements



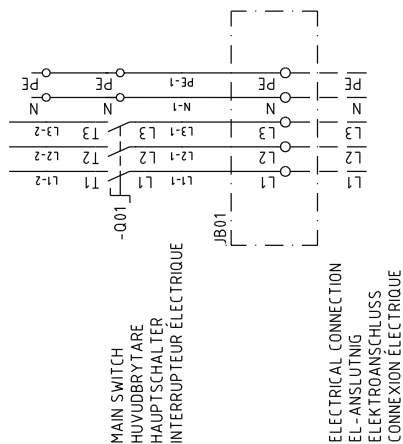
240V 3+PE, 60Hz 21.3kW 54A, FUSE 3×60A,
230V 3+PE, 50Hz 19.7kW 52A, FUSE 3×63A,
208V 3+PE, 60Hz 20.5kW 59A, FUSE 3×60A,
200V 3+PE, 50/60Hz 19.1kW 58A, FUSE 3×63A,

240V 3+PE, 60Hz 6.5kW 23A, FUSE 3×25A,
230V 3+PE, 50Hz 6.5kW 24A, FUSE 3×25A,
208V 3+PE, 60Hz 6.5kW 26A, FUSE 3×30A,
200V 3+PE, 50/60Hz 6.5kW 27A, FUSE 3×32A,

240V 3+PE, 60Hz 11.5kW 30A, FUSE 3×30A,
230V 3+PE, 50Hz 10.7kW 29A, FUSE 3×32A,
208V 3+PE, 60Hz 11.1kW 33A, FUSE 3×35A,
200V 3+PE, 50/60Hz 10.4kW 32A, FUSE 3×32A,

240V 3+PE, 60 Hz 11.5kW 30A, FUSE 3×30A,
230V 3+PE, 50 Hz 10.7kW 29A, FUSE 3×32A,
208V 3+PE, 60 Hz 11.1kW 33A, FUSE 3×35A,
200V 3+PE, 50/60Hz 10.4kW 32A, FUSE 3×32A,

240V 3+PE, 60Hz 21.3kW 54A, FUSE 3×60A,
230V 3+PE, 50Hz 19.7kW 52A, FUSE 3×63A,
208V 3+PE, 60Hz 20.5kW 59A, FUSE 3×60A,
200V 3+PE, 50/60Hz 19.1kW 58A, FUSE 3×63A,



240/415V 3N+PE, 50Hz 21.1kW 31A, FUSE 3×32A,
230/400V 3N+PE, 50Hz 19.7kW 30A, FUSE 3×32A,
220/380V 3N+PE, 50/60Hz 17.9kW 29A, FUSE 3×32A,

240/415V 3N+PE, 50Hz 6.5kW 14A, FUSE 3×20A,
230/400V 3N+PE, 50Hz 6.5kW 14A, FUSE 3×20A,
220/380V 3N+PE, 50/60Hz 6.5kW 14A, FUSE 3×20A,

240/415V 3N+PE, 50Hz 11.4kW 18A, FUSE 3×20A,
230/400V 3N+PE, 50Hz 10.7kW 17A, FUSE 3×20A,
220/380V 3N+PE, 50/60Hz 9.8kW 16A, FUSE 3×20A,

240/415V 3N+PE, 50Hz 11.4kW 18A, FUSE 3×20A,
230/400V 3N+PE, 50Hz 10.7kW 17A, FUSE 3×20A,
220/380V 3N+PE, 50/60Hz 9.8kW 16A, FUSE 3×20A,

240/415V 3N+PE, 50Hz 21.1kW 31A, FUSE 3×32A,
230/400V 3N+PE, 50Hz 19.7kW 30A, FUSE 3×32A,
220/380V 3N+PE, 50/60Hz 17.9 kW 29A, FUSE 3×32A,

ELECTRICAL
HEATED

STEAM HEATED

STEAM HEATED
WITH BOOSTER

STEAM HEATED WITH
ELECTRICAL BACKUP

STEAM HEATED WITH ELECTRICAL
BACKUP AND BOOSTER

Description

Contents

General	3
Schematic diagram	4
Electric heating	4
Steam heating	4
Steam and electric heating	5
Explanation of symbols	5
Safe and simple	6
Simple service and installation	6
Door operation	6
Manually-operated door	6
Automatically-operated door	7
Dosing system	7
Drying	8
Programs	9
Abort at start of process	10
Aborting an ongoing process	10
Fast-stepping a program	11

General

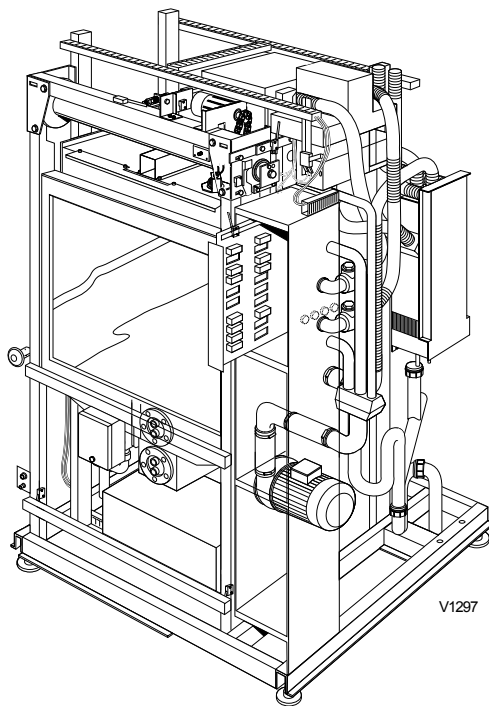
The machine is a fully-automatic washer disinfecter for cleaning and disinfecting goods in hospitals, laboratories and the pharmaceutical industry.

The machine has two washing vanes and two dockings and can be equipped with several different accessories for different cleaning requirements. These accessories are presented in a special accessories catalogue.

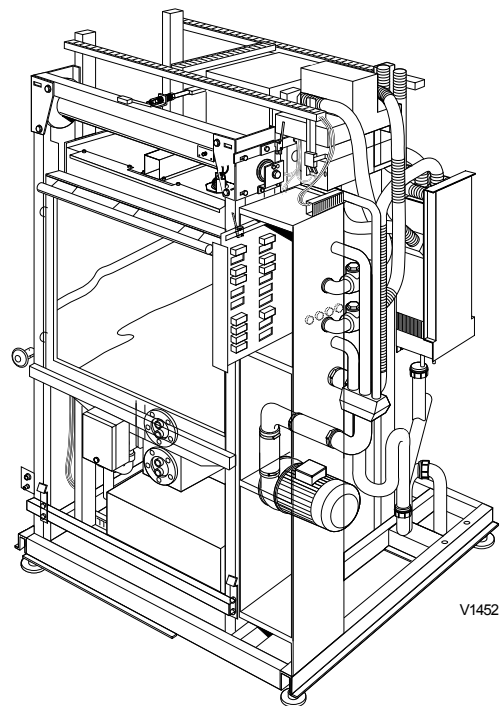
There are several possible ways of installing and equipping the machine depending on its field of application:

- Heating by electricity or steam.
- Connection of distilled or de-ionised water.
- Electrically-heated or steam-heated booster tank for the last rinse water.
- Integral drying system.
- Single or double door.
- Extra dosing pump which allows chemical disinfection of heat-sensitive goods.
- Infeeder/outfeeder
- Automatic program selection (basket indication)
- Audible signal on process complete, fault code, etc.

The washer-disinfecter has been tested and approved in accordance with SPRI and BGA recommendations.



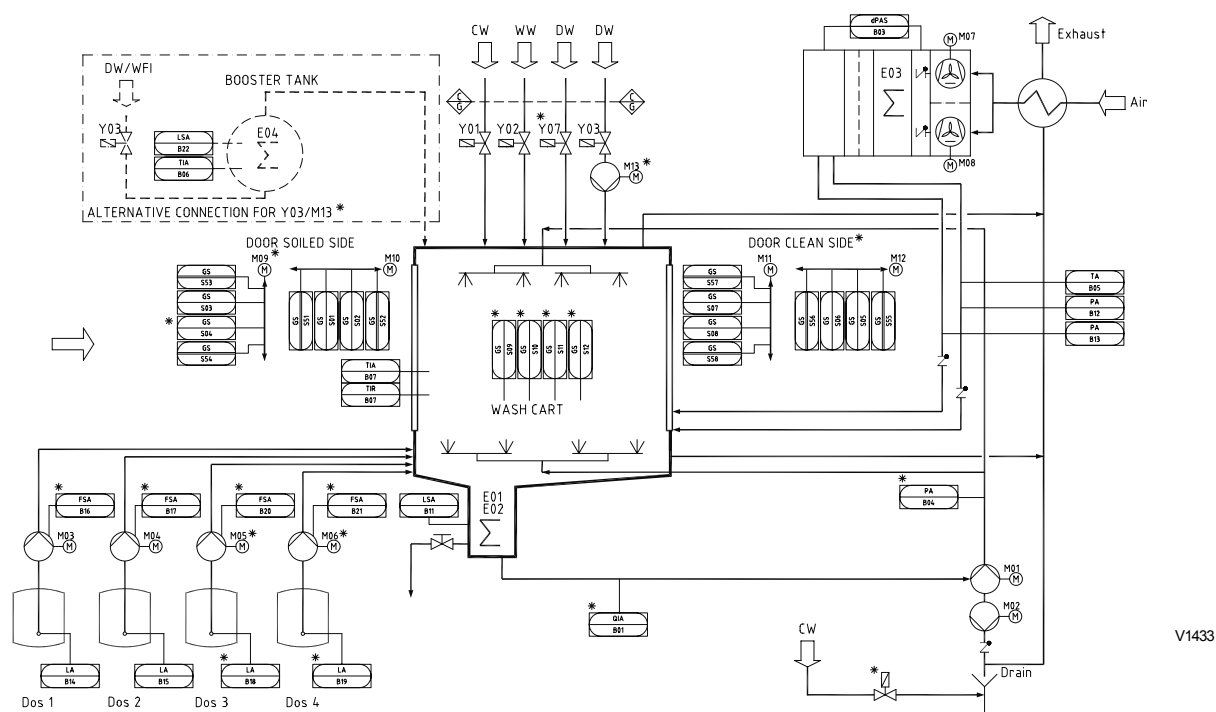
Washer-disinfecter with automatic door



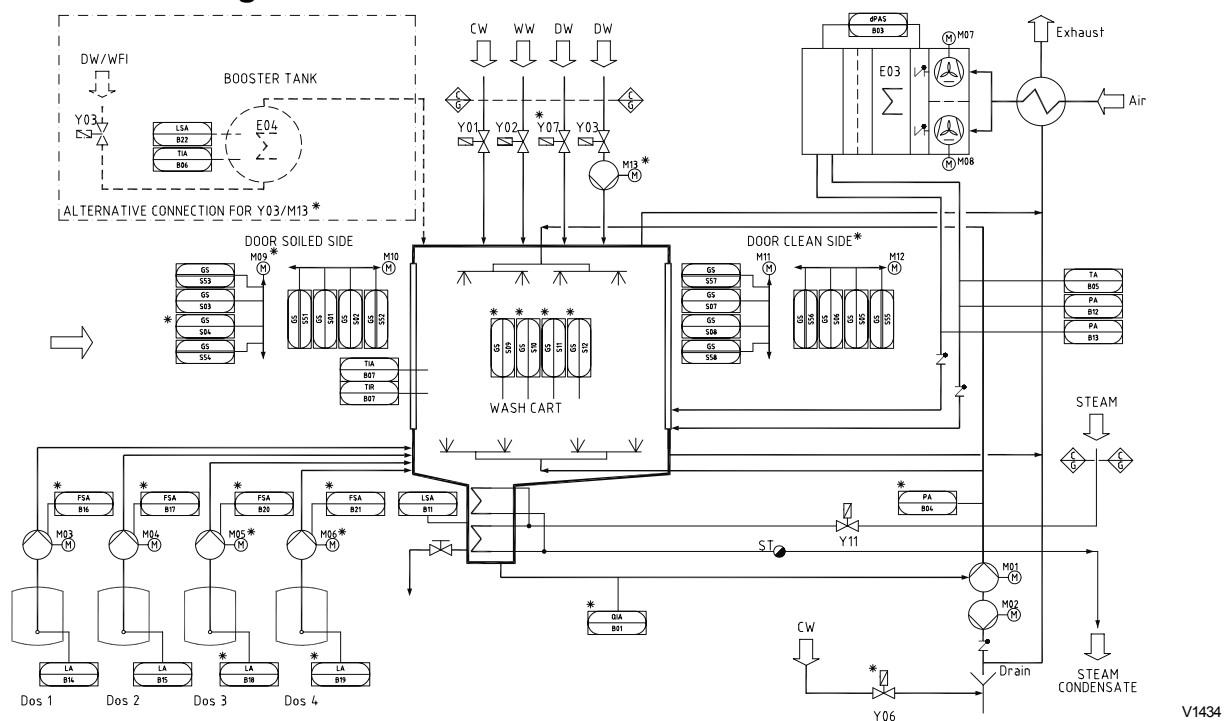
Washer-disinfecter with manual door

Schematic diagram

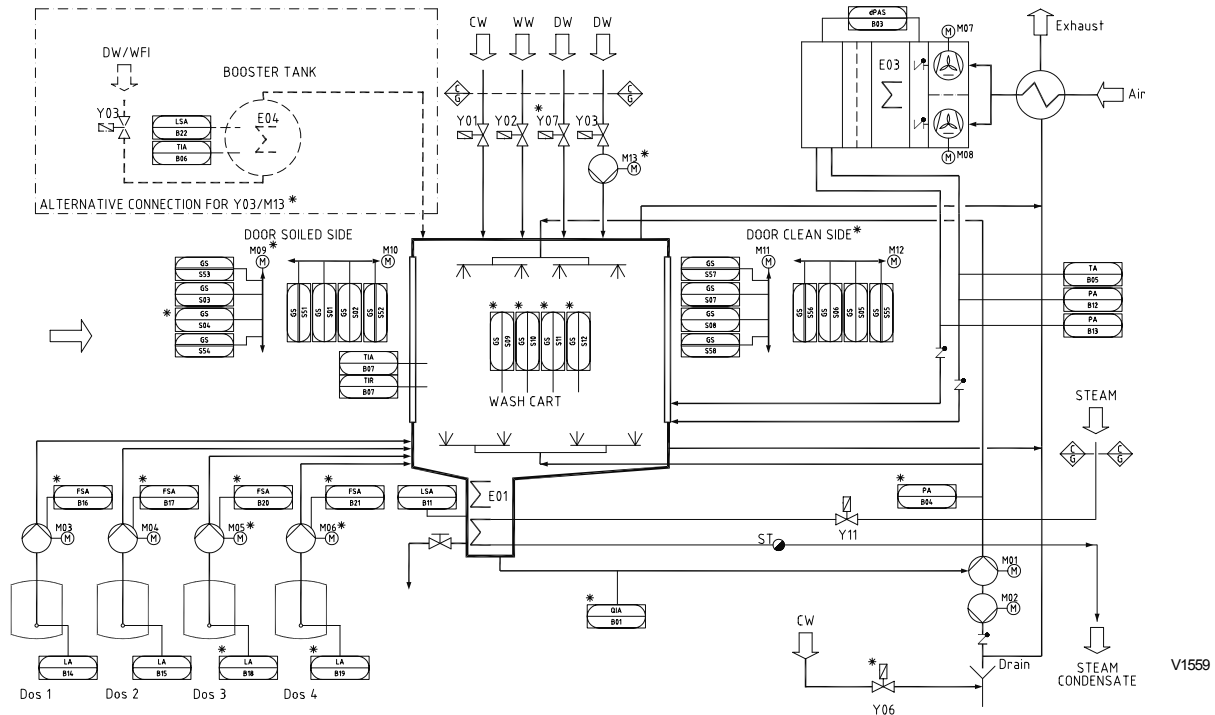
Electric heating



Steam heating



Steam and electric heating



Explanation of symbols

Connection lines etc.

	Main flow line
	Subsidiary flow line
	Optionet equipment
	Optionet equipment
	Dimension of piping
	Connections
	No connections
	Limits of supply with identification code
	Flow direction
	Spray Nozzle

Heat exchangers

	Heat exchanger air/air
--	------------------------

Valves

	Valve manually activated
	Valve solenoid activated
	Valve pneumatic activated

Motor Objects

	Pump
	Blower/Fan
	Electric heater
	Electric motor

Filters

	Filter air
	Filter liquid

Motor Objects

	Pump
	Blower/Fan
	Electric heater
	Electric motor

Auxiliary

	Check valve
	Steam trap
	Drain
	Hose

Instrument functions

	Control system connected instr.
	Local control (Hardware)
	Local
	Instrument function Tag number

Safe and simple

The disinfecter is controlled by a microprocessor. This has several advantages:

- the built-in service program makes troubleshooting and servicing far easier
- safety and reliability can be kept high by continuous monitoring of the process
- the dosing of detergent, the temperature and the disinfection time can all be altered with great precision to suit different conditions.

The programs can be adapted precisely to suit the needs of each user. Existing programs can be re-programmed via a PC. As standard, the washer-disinfecter has two to six programs.

The door and wash chamber are well insulated, so that the washer-disinfecter is energy-efficient and silent in operation.

Operation is simple and the control buttons are few and clearly marked.



Programming may only be done by authorised personnel.

Simple service and installation

Valves and electrical equipment are easily accessible from the front for inspection and service.

Door function

The washer-disinfecter can be fitted with a single door or double doors. All doors are of the vertical sliding type.

The doors can be motorised for automatic opening and closing. The doors have efficient anti-crush protection.

Machines with double doors have a system of interlocks to ensure that only one door can be opened at a time. This means that the clean-side door must be closed and locked by pressing the  button before the dirty-side door can be opened.

When  is pressed, the door is locked and a yellow lamp flashes (process running) for about 10 seconds. If  is pressed again during this "cancel time", the dirty-side door is unlocked and the door can be opened manually or alternatively it opens automatically.

The doors can be locked and unlocked individually from the service program (authorisation required).

Manually-operated door

When the door is closed manually and  is pressed, the door is locked automatically, the yellow lamp flashes and the program starts.

When the program is complete, a green lamp lights up on both sides (if there are double doors) and the clean-side door is unlocked. When the door has been opened manually, the green lamp goes out. With double doors, the clean-side door must be closed manually and locked by pressing the  button before the dirty-side door can be unlocked.

A manually-closed door can be opened by pressing the  button for about five seconds. Press  to unlock the door.

Automatically-operated door

When  is pressed, the door is locked, the yellow lamp flashes and the program starts.

When the program is complete, a green lamp lights up on both sides (if there are double doors) and the clean-side door opens automatically. When the door is fully open the green lamp goes out on both sides. With double doors, the clean-side door must be closed and locked by pressing the  button before the dirty-side door opens automatically.

An automatically-operated door can be closed on the dirty side without starting a process.

Press and hold  for about five seconds. The door is closed and locked automatically. Press  to unlock the door.

Dosing system

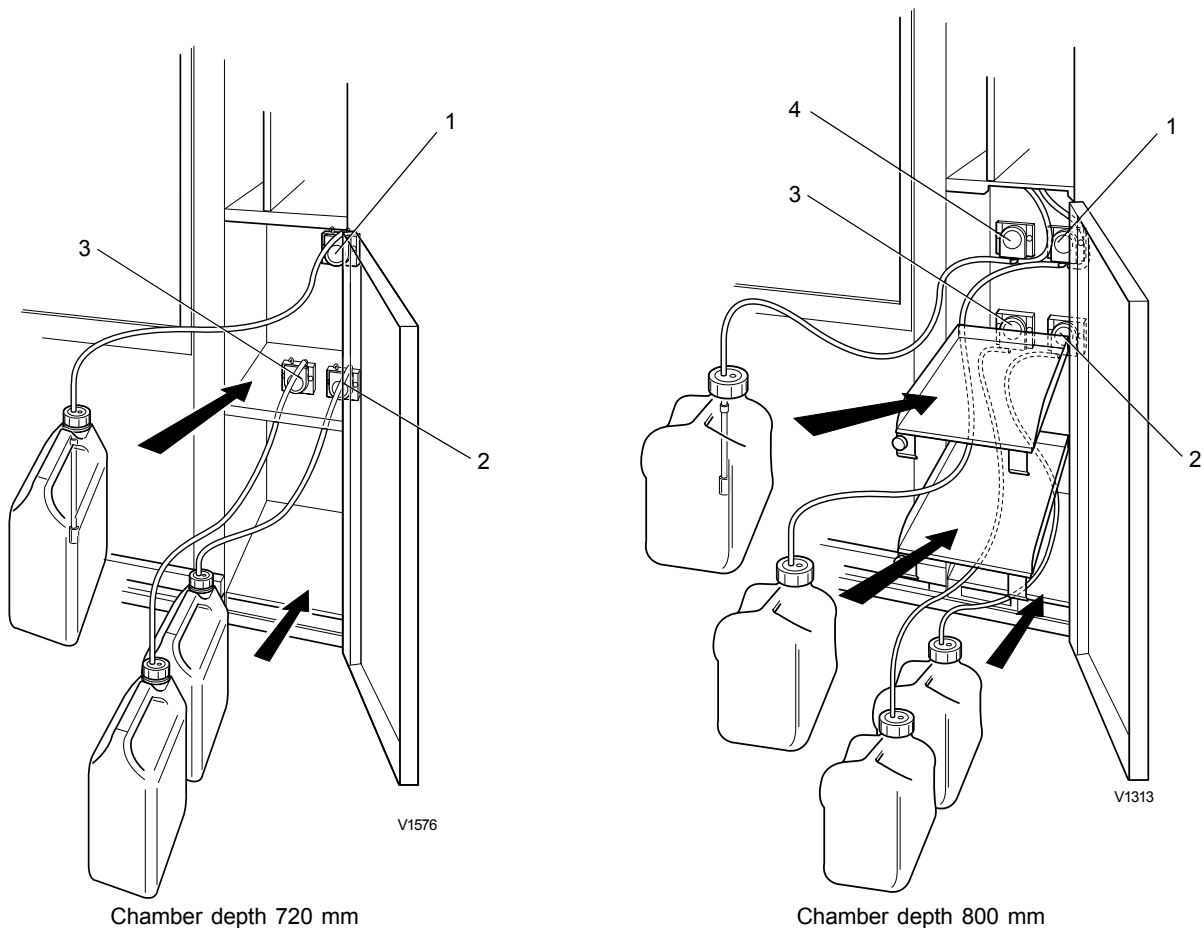
In standard form, the machine has two different dosing systems. One is for alkaline detergent and one is for rinse-aid or acid detergent. The dosing amount can be set individually for each program.

The machine cannot be started until detergent has been dispensed. If the detergent holder is empty "DOS 1-4 Low level" appears on the display.

A third and a fourth dosing system for heat-sensitive goods or instrument milk, for example, can be installed.

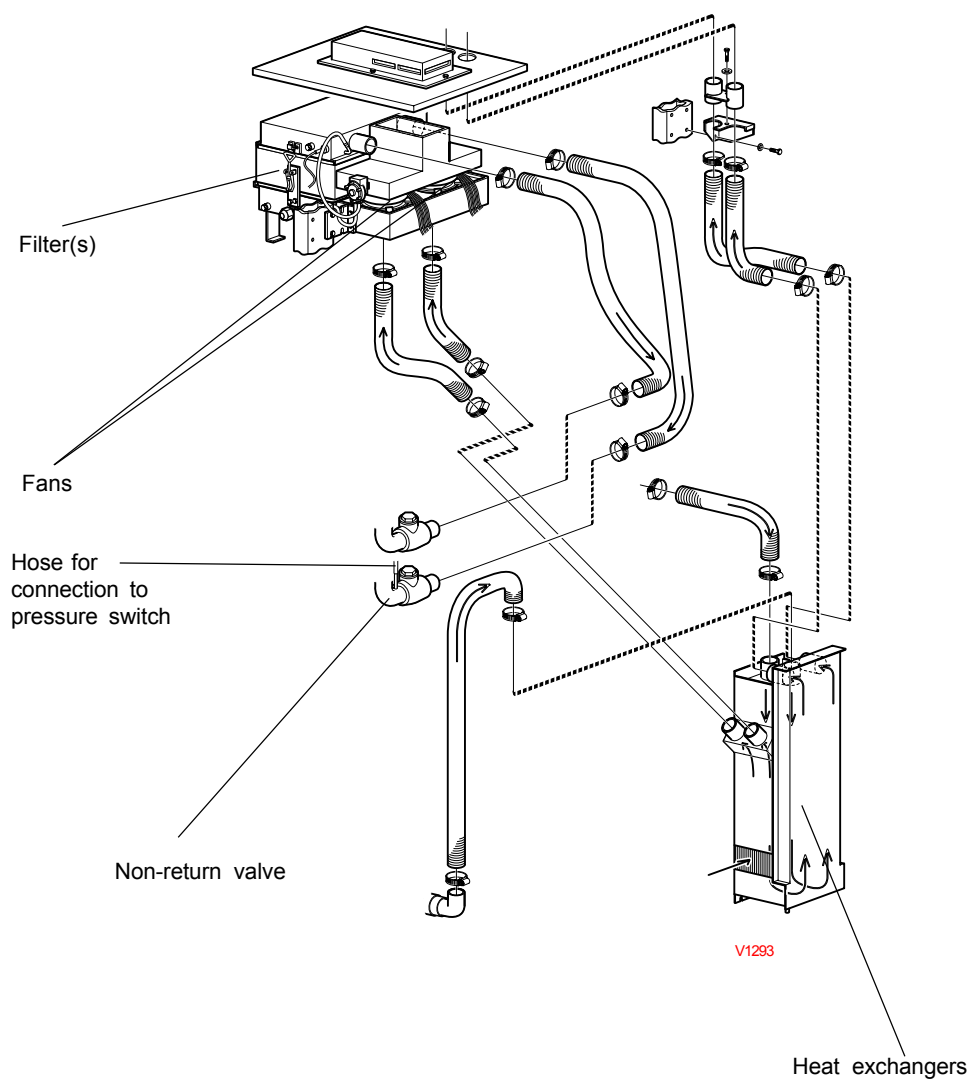
Dosing pumps for:

- 1 Alkaline detergent
- 2 Rinse-aid or neutralisation
- 3 Instrument milk or enzyme agent (option)
- 4 Chemical disinfection (option)



Drying

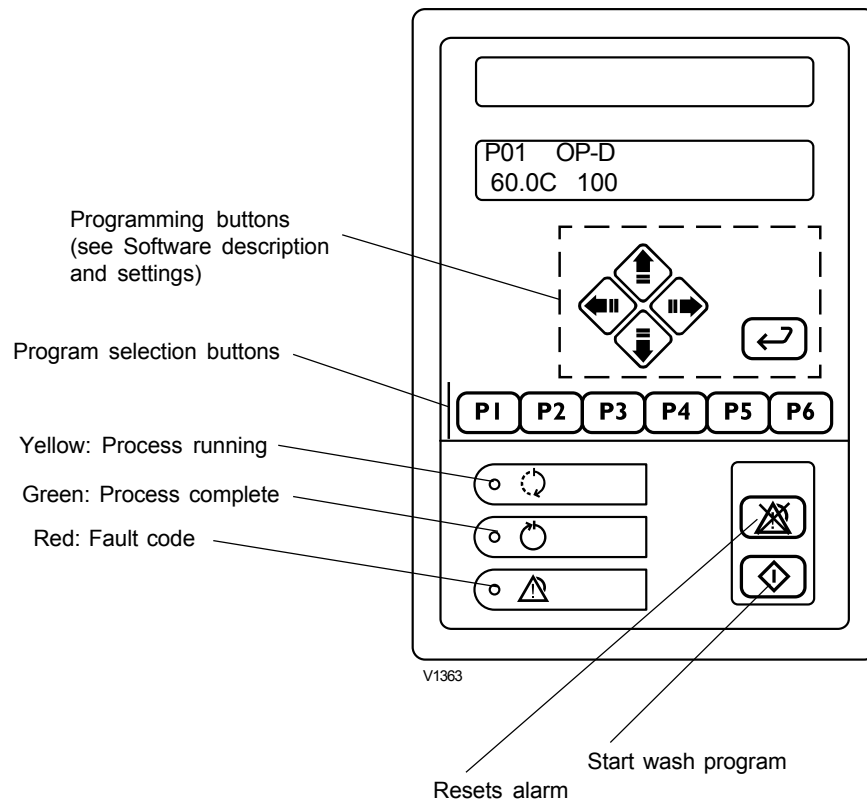
The machine is equipped with a drying system as standard.



Program

The machine has an electronically programmable control system which can hold up to 10-15 programs. Six of these programs can be started with the program selection buttons. With **P1** - **P6** you can choose up to six programs. If the control system has more programs, the subsequent ones are chosen from a scrollable list. You can reach the list of available programs by pressing  twice, then choosing a program with  or . Confirm the chosen program with .

The machine comes with a number of standard programs in the programmer (see the appendix for Standard programs). Parameters in these programs can be modified to suit the needs of individual users. Individual programs can be created with a PC. An entire standard program or parts of one can be used as a starting point for programming.

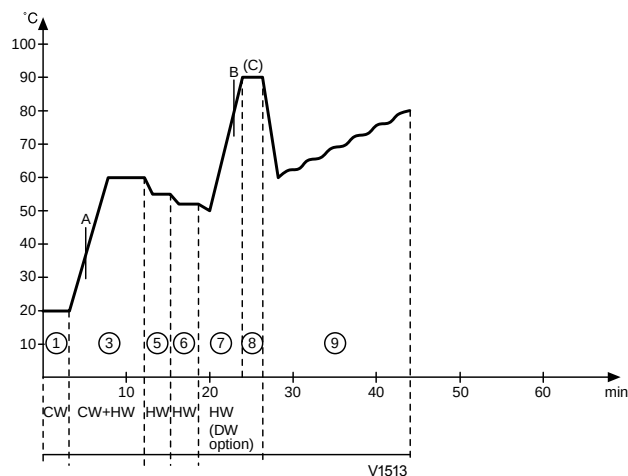


Programming may only be done by an authorised service technician.

Programs are chosen with the program selection buttons and the process is started with  (starting of a process is indicated by the yellow lamp at  flashing for ten seconds and then going out).

When the process is complete, the green lamp at  lights up and the door can be opened manually (on a machine with manual door). With an automatic door, the door opens automatically when the process is complete.

The illustration on the next page shows the program sequence in the OP-D program.



Program phases

①	Pre-rinse 1	A	Alkaline detergent
②	Pre-rinse 2	B	Neutralisation
③	Wash	C	Instrument milk (extra equipment)
④	Neutralize		If instrument milk is does, neutralisation is not dosed.
⑤	Post-rinse 1		
⑥	Post-rinse 2		
⑦	Final rinse		
⑧	Disinfection		
⑨	Drying		

Abort at start of process

A started program can be aborted within ten seconds of the door locking. To abort a started process, press . During the period when the program can be aborted, a yellow lamp flashes at . The door is unlocked and opened automatically and the machine can be restarted in the usual way.

Aborting an ongoing process

During a process, the machine can be stopped with the main switch. If the power is switched on within 60 seconds, the program continues until the end. If the power is switched on after more than 60 seconds, error code F00 POWER FAIL is displayed. Press  to silence the alarm signal. Pressing  again drains liquid from the machine and the dirty side door goes down.

Fast-stepping a program



All safety functions are disabled for fast stepping.

Fast stepping must only be used during servicing.

Never stop fast stepping in a heating phase. If you do, the machine may be damaged.

An ongoing program can be fast-stepped phase by phase. Fast stepping can be chosen during an ongoing process.

1. Fast stepping is chosen in the service program; see tab 5 Software description and setting, under DIP switches display (1.4.2.4).
2. Set DS02 STEP in STATUS to 1 and press . Exit the service program.
3. Fast-step with .
4. Reset DS02 STEP STATUS to 0 and press . Exit the service program.



Reset DS02 STEP STATUS to 0 after completion of fast stepping.

Software description and settings

Contents

Description	3
Control panel	4
Display	4
Program selection buttons	4
Menu tree navigation buttons	5
Scroll in menus and lists	5
Field editing	5
Password	6
Operator	6
Parameter	6
Supervisor	6
Service	7
Programming	7
Menu tree	Appendix

Description

This section describes the PACS 300 control and monitoring system. PACS 300 is an electronic system that is used to control the various functions of the washer-disinfector. The letters **PACS** stand for Programmable Autoclave Control System.

The purpose of the control system is to issue orders and send them to the executive components of the washer-disinfector so that a number of process steps can be performed in accordance with a predetermined template. The order signals are worked out by the computer program of the control unit in conjunction with measurements of actual parameter values for the current program. These are usually times, temperatures and pressures.

Several different pieces of equipment can be connected to the control unit for programming, monitoring and documenting the disinfection processes.

The operator communicates with the control unit via a control panel or an ordinary PC.

All operator panels can be used to monitor the processes, since they display all the set parameter values as well as actual values on request. All relevant data associated with a given process, such as batch number, operator number, date, etc., can be entered by the operator.

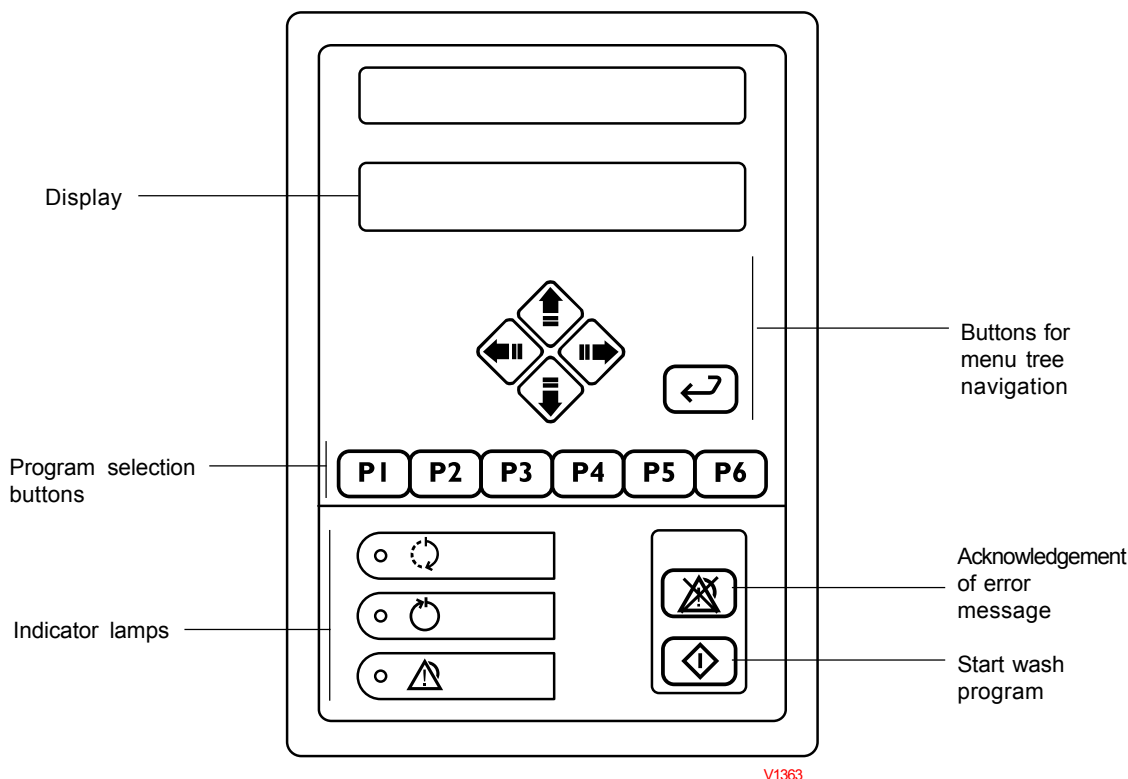
Programs, system definitions and process data can be documented by connecting a printer to the unit. A host computer can also be connected directly to the CPU of the control system.

When the need arises, a measuring and monitoring system entirely independent of the control system, can be set up by connecting a PACS SUPERVISOR system, consisting of CPU, operator panel and connections to the control unit CPU. The measurements of the SUPERVISOR are made by its own separate temperature and pressure sensors.

The computer contains programs for automatic calibration of the temperature and pressure sensors. Where alternative correction constants are known, they can be entered manually. The testing functions include means of activating analog and digital outputs and for monitoring analog and digital inputs.

The control panel

The buttons on the control panel are used to choose programs, navigate the menu tree, acknowledge error codes, etc.



Display

The screen has two lines, each with a capacity 20 characters.

P01 OP-SHORT-D
47.0 °C

Information or error messages appear on the bottom line and replace the text that would otherwise appear here.

Program selection buttons

With **P1**-**P6** you can choose up to six programs. If the control system has more programs, the subsequent ones are chosen from a scrollable list. You can reach the list of available programs (from standby mode), by pressing twice and choosing a program with or . Confirm the chosen program with .

Buttons for menu tree navigation

There are five buttons for navigating the panel. These fixed buttons are four arrow buttons that control the cursor (, , , and ) and .

-  Used to go back one step (up one level) in menus. If the button is held down for a little longer, you are returned to the main menu.
-  Not used in menus and lists.
-  Shows the next object in the list.
-  Shows the previous object in the list.
-  Goes to the chosen object in the list or opens a field for editing if there is an editable field.

Scroll in menus and lists

You can use , , , and  to scroll through menus and lists. You can scroll either line by line or two lines at a time, depending on what is displayed. The top line of the list may look like the example below.

```
>PRINT LAST CYCLE
SYSTEM                                V
```

The angle bracket ">" to the left of the top line shows which object will be chosen if you press . Bottom right there is a "v" indicating that there are more objects in the list which are displayed if you press .

This is what you see if you are in a list. The "arrows" to the right show that there are objects both above and below the displayed line.

```
>SYSTEM                ^
ABOUT
```

When you reach the end of the object list, only one up-arrow appears at the right edge of the displayed. Menus and lists are "endless"; you can reach the top of the list by pressing  at the end of the list.

```
SYSTEM                ^
>ABOUT
```

Field editing

 opens the chosen field for editing. The content of the field is changed with  or . These arrow keys scroll in an endless list containing numbers. When a field is opened for editing, the first character is highlighted. To move the cursor use  or .

Entered values are saved when you press . On saving, the system checks that the value is in the permitted range.

Passwords

There are five passwords with different levels of authorisation in the system program. The operator password has the lowest authority; the programming password has full authority.

The following password levels are as follows:

- Operator – code 558387.
- Parameter – contact service for code.
- Supervisor – contact service for code.
- Service – contact service for code.
- Programming – contact service for code.

NOTE: In the menu tree where the password must be entered there is a letter code (between PW: A-K) which refers to the function for which the relevant password is authorised.

When a password is entered, the top line shows “ENTER PASSWORD”. Press  to open the entry field for editing. Each number can be changed with  and .  and  toggle between the numbers. Press  to confirm the entered password.

If the wrong password is entered, “WRONG PASSWORD” appears on the first line. Press  to return to the display showing “ENTER PASSWORD”

NOTE: The password cannot be changed.

Operator

Code in menu tree	Authority to change
A	Parameters of type A and to see parameters of type I.

Parameters

Code in menu tree	Authority to change
A	Parameters of type A and to see parameters of type I.
H	Process-critical configurations, parameters of type P.

Supervisor

Code in menu tree	Authority to change
A	Parameters:
B	Calendar (time and date)
H	Process-critical configurations, parameters of type P.
J	Password configuration
K	Documentation

Service

Code in menu tree	Authority to change
A	Parameters:
B	Calendar (time and date)
C	Sensor calibration
E	Service messages
F	DIP switches
G	Non-critical system configurations.
H	Process-critical configurations, parameters of type P.
J	Password configuration
K	Documentation

Programming

Code in menu tree	Authority to change
A	Parameters:
B	Calendar (time and date)
C	Sensor calibration
E	Service messages
F	DIP switches
G	Non-critical system configurations.
H	Process-critical configurations, parameters of type P.
I	Programming (phases and programs)
J	Password configuration
K	Documentation

Preventive maintenance

Contents

General	3
Periodic maintenance	3
Function check	4
Instructions, cable, switch	4
Filter and valves	4
Controls	4
Insert for goods	4
Door	5
Detergent dosing	5
Washing system	5
Temperature control	5
Dryer	5
Printer (extra equipment)	5

General

The required maintenance interval will depend largely on the quality of the incoming water and how often the machine is used. The maintenance will have to be determined in each individual case. We recommend that the stated maintenance operations are done at the specified intervals. We also recommend that a function check is done once or twice a year.

For repairs or adjustments, see under Repair and adjustment.

Periodic maintenance



This may only be done by authorised personnel.



The machine is connected to the electricity supply and some components are live.

Component	Interval				
	Check yearly	Replace if necessary	Replace every year	Replace every other year	Replace 1000 hours
Door seal	•	•			
Hoses between dosing pump and detergent container	•			I	
Hose between dosing pump and machine	•			•	
Filter in incoming media	•	•			
Overheat protection	•	•			
Hose in hose pump	•			•	
Spray arm wings	•	•			
Sterile filter in dryer	•	•			
Hoses to dryer	•	•			
Non-return valve in dryer	•	•			
Check valve in waste outlet	•	•			
Fan to dryer	•	•			
Ink ribbon for printer	•	•			
Manual door: Spring on door closing	•				
Automatic door: Crush protection on door closing	•				

Function check



This must only be done by authorised personnel.



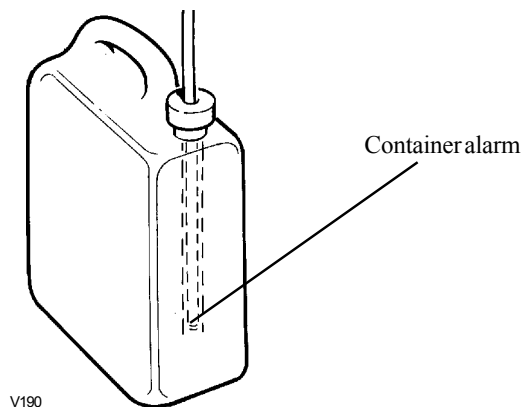
The machine is connected to the electricity supply and some components are live.

Instructions, cable, switch

- Check that a goods placing sign has been put up on the wall behind the disinfecter.
- Check that the isolator switch on the wall is working and that the connecting cable is undamaged and free from defects.

Filter and valves

- Check that level switches and manual shutoff valves are working properly.
- Check the filters in the supply line (see under Cleaning the filters in the supply line). Clean when necessary.
- Check all pipe couplings. Tighten and seal if necessary.



Controls

- The machine is operated with the buttons on the control panel.
- Check that the control buttons are working. If the buttons are working, a beep will be heard.
- While a program is running check that the yellow lamp at  is lit. When the program is complete, the green lamp at  should light up.

Insert for goods

- Check that the inserts for the machine dock properly with the water outlets.
- Check that washing arms (if fitted) rotate and are not clogged.
- Check that the goods to be cleaned are retained in the insert.

Door

Check that the door seal closes tight and is undamaged and that there is no leakage while a program is running. Clean or replace the seal if necessary.

Detergent dosing

Check that the suction hose and pump are full of detergent or rinse-aid before running a program. When the pre-programmed amount of detergent is changed, the consumption must be checked with a measuring glass.

Washing system



All supply lines must be closed when working on the pipe system.

- Check that the washing arms can rotate freely.
- Check that the holes in the washing arms are not blocked. Clean when necessary.
- Check that the coarse strainer in the bottom of the washing chamber is correctly installed. Clean when necessary.
- Check that all couplings connecting the washing system to the pump and chamber are leaktight. Tighten and seal if necessary.

Temperature check

- Check the temperature during a program run. Compare time and temperature with the program sheet. Time and temperature are especially important in the disinfection phase.

The measuring equipment must be capable of registering temperature and time continuously. High-performance equipment is essential for reliable measuring results, because of the relatively rapid temperature changes.

Only one measuring point in the centre of the machine is need for the function check.

Note:

Washer-disinfectors that have been shown not to meet the requirements in terms of temperature, sequence, washing system and safety must not be used until the faults have been corrected.

Dryer

- Check seals and hoses for leaks once a year.
- Replace the sterile filter if necessary or in the event of an alarm.

Printer (extra equipment)

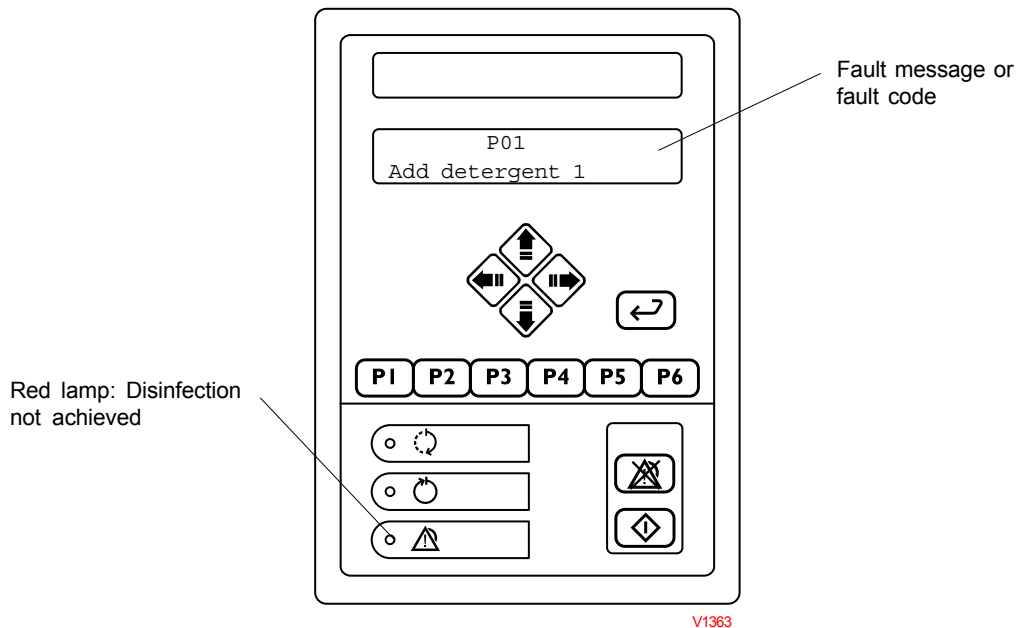
- Check ink ribbon cartridge
- Check the printout quality.

Fault indications and troubleshooting

Contents

Fault indications	3
A red lamp lights up	3
Messages	3
Fault codes	4
Acknowledging a fault code	4
Troubleshooting	5

Fault indications



A red lamp lights up

If the red lamp at  lights up, the process has been aborted because of a fault. Call service personnel.

Messages

P02 OP-D
DOSE 1 LOW LEVEL

Messages appear in plain text on the display. The machine cannot be started until the fault has been put right. The following messages can be displayed:

Dose 1 low level	Empty container alarm 1: if detergent 1 is finished, an operation code is generated. The alarm is reset automatically when the container is refilled.
Dose 2 low level	Empty container alarm 2: if detergent 2 is finished, an operation code is generated. The alarm is reset automatically when the container is refilled.
Dose 3 low level	Empty container alarm 3. If detergent 3 is finished, an operation code is generated. The alarm is reset automatically when detergent is added.
Dose 4 low level	Empty container alarm 4. If detergent 4 is finished, an operation code is generated. The alarm is reset automatically when detergent is added.

Note:

The last process had access to detergent. A message is displayed for future processes.

Error codes

P02 OP-D
F00 POWER FAIL

Fault codes indicate that a serious fault has occurred in the washing process. The fault must be put right by an authorised service technician.

Acknowledging a fault code

Reset the fault code by:

1. pressing . The alarm signal is silenced.
2. correcting the fault.
3. The machine is still locked but the current process has been aborted. Pressing  again drains liquid from the machine and the dirty side door goes down.

Note:

If the draining pump is faulty, the water is not drained from the machine.

NOTE:

The goods in the machine are not clean. Start a new process.

Troubleshooting

The table below describes the fault codes that may be generated and a possible action for each fault code.



This may only be done by authorised personnel.



The machine is connected to the electricity supply and some components are live.

Fault code	Fault	Comment
F00	Power failure	If the power failure lasts for more than 59 seconds, the process is aborted. The fault code is generated when the power returns.
F01	The motor cutout has tripped.	The motor cutout (-F01) for the circulation pump has tripped. Possible action: - Check that there is power on all phases from the circulation pump. - Check that the motor cutout is correctly set (see electrical diagram). - Check that the pump impeller rotates easily. - Check the direction of rotation (see installation instructions).
F02	Water filling too slow.	The water level sensor (-B11) is not activated within ten minutes of filling starting. Possible action: - Check that the shutoff valves are open and that water is reaching the machine. - Check that the solenoid valves open and that their filters are not clogged.
F03	Emptying time too long	Emptying takes longer than five minutes or the water level sensor (-B11) is still activated when the emptying phase is complete. Possible action: - Check that the waste pump pumps out water. - Check that the pressure switch changes over. - Check that the solenoid valve closes (water does not leak in).
F04	Water leakage in the dryer	Switch to water level sensors (-B12, -B13) open. Possible action: Check that the check valves to the dryin connection close.
F05	Fault door, dirty side	Door does not lock (-S02) within 10 seconds or opens while a program is running. Possible action: - Check whether the microswitch (-S02) for the "door locked" limit position has been activated within 10 seconds on door locking. - Check that the motor (-M10) and the switch (-S52) for door locking are working.

Fault code	Fault	Comment
F06	Fault door, dirty side	The door does not unlock (-S01) within 10 seconds. Possible action: - Check whether the microswitch (-S01) for the "door open" limit position has been activated within 10 seconds on door unlocking. - Check that the motor (-M10) and the switch (-S51) for door unlocking are working.
F07	Fault door, dirty side	Door does not lock (-S03) within 20 seconds or opens while a program is running. (Machine with automatic door only.) Possible action: - Check that nothing is trapped in the door. - Check whether the microswitch (-S03) for closed door limit position has been activated for 20 seconds. - Check that the motor (-M09) and the switch (-S53) for door locking are working. - Check the chain.
F08	Fault door, dirty side	The door does not open (-S04) within 20 seconds. (Machine with automatic door only.) Possible action: - Check that nothing is trapped in the door. - Check whether the microswitch (-S04) for closed door limit position has been activated for 20 seconds. - Check that the motor (-M09) and the switch (-S54) for door opening are working. - Check the chain.
F09	Faulty door, clean side	Door does not lock (-S05) within 10 seconds or opens while a program is running. Possible action: - Check whether the microswitch (-S05) for the "door locked" limit position has been activated within 10 seconds on door locking. - Check that the motor (-M12) and the switch (-S55) for door locking are working.
F10	Faulty door, clean side	The door does not unlock (-S06) within 10 seconds. Possible action: - Check whether the microswitch (-S06) for the "door open" limit position has been activated within 10 seconds on door unlocking. - Check that the motor (-M12) and the switch (-S56) for door unlocking are working.
F11	Faulty door, clean side	Door does not lock (-S07) within 20 seconds or opens while a program is running. (Machine with automatic door only.) Possible action: - Check that nothing is trapped in the door. - Check whether the microswitch (-S07) for closed door limit position has been activated for 20 seconds. - Check that the motor (-M11) and the switch (-S57) for door locking are working. - Check the chain.

Fault code Fault		Comment
F12	Faulty door, clean side	The door does not open (-S08) within 20 seconds. (Machine with automatic door only.) Possible action: - Check that nothing is trapped in the door. - Check whether the microswitch (-S08) for closed door limit position has been activated for 20 seconds. - Check that the motor (-M11) and the switch (-S58) for door opening are working. - Check the chain.
F15	Flowmeter, dosing 1	Not enough detergent 1 dosed (-B16). Possible action: - Check operation of the dosing pump. - Check that there is detergent in the container. - Check whether an empty container alarm has occurred. - Check that there is no air in the flowmeter and that it is rotating. - Check that the hoses are not blocked.
F16	Flowmeter, dosing 2	Not enough detergent 2 dosed (-B17) Possible action: - Check operation of the dosing pump. - Check that there is detergent in the container. - Check whether an empty container alarm has occurred. - Check that there is no air in the flowmeter and that it is rotating. - Check that the hoses are not blocked.
F19	Flowmeter, dosing 3	Not enough detergent 3 dosed (-B20) Possible action: - Check operation of the dosing pump. - Check that there is detergent in the container. - Check whether an empty container alarm has occurred. - Check that there is no air in the flowmeter and that it is rotating. - Check that the hoses are not blocked.
F20	Flowmeter, dosing 4	Not enough detergent 4 dosed (-B21) Possible action: - Check operation of the dosing pump. - Check that there is detergent in the container. - Check whether an empty container alarm has occurred. - Check that there is no air in the flowmeter and that it is rotating. - Check that the hoses are not blocked.

Fault code Fault		Comment
F21	Booster tank slow to fill	If filling (-B11) takes longer than 10 minutes, a fault code is generated. Possible action: - Check that the shutoff valves are open and that water is reaching the machine. - Check that the solenoid valves open and that their filters are not clogged.
F23	High conductivity	The conductivity (-U01) is higher than the set value after the third repeat rinse. Possible action: Check that the correct type of water is connected.
F24	Low pressure in dryer	The differential pressure (-B03) is <150 Pa . Possible action: - Check whether the fan, hoses or filter(s) are faulty. - When changing a filter, check that the new filter is correctly installed.
F25	High pressure in dryer	The differential pressure (-B03) is > 750 Pa . Possible action: Check whether the filter is clogged.
F26	Low pressure from circulation pump	The pressure (-B04) is <30 kPa. Possible action: - Check the docking between machine and wash rack. - Check that the pump impeller rotates easily. - Check the direction of rotation (see installation instructions). - Check that the detergent is not foaming.
F27	High pressure from circulation pump	The pressure (-B04) is > 130 kPa. Possible action: Check that no nozzles in the washing arms are blocked.
F28	Low temperature in dryer	The temperature (-B05) has not risen to 20 degrees C below the set value after two minutes. Possible action: Check that there is power on all phases up to the element.
F29	Faulty temperature sensor in booster tank.	The temperature (-B06) is <0 °C or >130 °C. Possible action: Check the temperature sensor (for open-circuit or short-circuit)
F30	Faulty temperature sensor in washing chamber	The temperature (-B07) is <0 °C or >130 °C. Possible action: Check the temperature sensor (for open-circuit or short-circuit)

Fault code	Fault	Comment
F31	Faulty temperature sensor in washing chamber	Independent. The temperature (-B07) is <0 °C or >130 °C. Possible action: a. Check the temperature sensor (for open-circuit or short-circuit)
F32	Faulty temperature sensor in dryer	The temperature (-B05) is <0 °C or >130 °C. Possible action: a. Check the temperature sensor (for open-circuit or short-circuit)
F33	Incorrect temperature in washing chamber	Wash temperature (-B07) has not risen by at least 10 degrees C after eight minutes' washing. Possible action for electrically heated machine: a. Check that there is power on all phases up to the elements. b. Check the overheat protection of the elements. Possible action for steam heated machine: a. Check the steam valve. b. Check that the ball valve is open and that the filter in the incoming steam is clean. c. Check steam pressure (see installation instructions). d. Check condensate drain. e. Check that there is no back pressure in the condensate drain.
F34	Faulty temperature sensor in washing chamber	Wash temperature (-B07) dependent and independent differs by more than ± 3 degrees C. Possible action: a. Check the calibration of the temperature sensor (see Calibration under Repair and adjustment) b. Check the temperature sensor.

Repair and adjustment

Contents

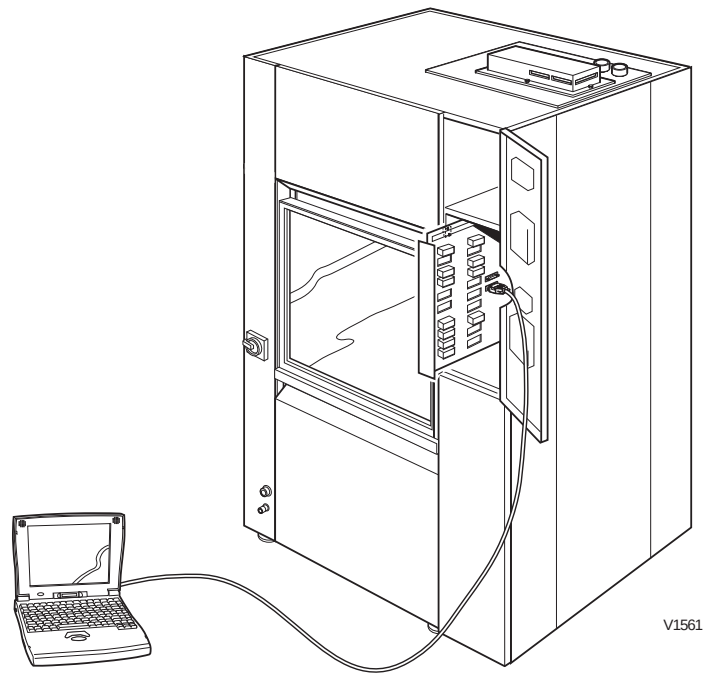
Connecting a PC	3
Connecting a barcode scanner	4
Handscanner	4
Barcode scanner	5
Loading a program to flash memory	6
Loading system programs	6
Load language files	8
Cold start	11
Calibration	12
Conductivity meter	12
Check the output signal from conductivity meter	12
Set the cell constant	12
Calibration	13
Pressure sensor for circulation pump	16
Temperature sensor – with resistor	18
Temperature sensors – with ice bath and oil bath	20
Differential pressure gauge for dryer	22
Replacing a temperature sensor	25
In wash chamber and dryer	25
In booster tank	25
Door	26
Position and operation, door switches	26
Adjusting door switches	28
Adjusting DOOR UP safety switch	29
Replacing the door seal	30
Removing the door	31
Adjusting the door closing force	32
Adjusting manual door	33
Overheat protection	34
Cleaning the filters in the solenoid valves	35
Dryer	36
Conductivity measurement (extra equipment)	37
Function in washing process	37
Measuring range	37
Calibration	37
Removing a measuring cell	37
Setting detergent and rinse-aid quantities	38
Printer (extra equipment)	39
Replacing the paper roll	39
Ribbon cartridge replacement	40
Jumpering an expansion card	40
Replacing a hose to a hose pump	42
Booster tank	43
Booster tank with drain tap	43
List of components	45

Connecting a PC

An RS-232 cable is needed to connect a PC to the washer-disinfector.

Proceed as follows:

1. Connect a cable between the PC and port X24 or X25 as shown below.
 - X24 is mainly used for a PC and (for example) a scanner.
 - X25 is used mainly for T-doc (RS485) and printer (RS232 or RS485).



2. Set type of communication. The communication settings are done in the service program; see under tab 5 Software description and settings. Proceed as follows if the PC is:

connected to port X24

- Go into Communication setup COM 0 (1.4.2.3.5.1); see tab 5 Software description and settings.
- Choose COMLI PROTOCOL and press . Exit the service program.

connected to port X25

- Go into Communication setup COM 1 (1.4.2.3.5.2); see tab 5 Software description and settings.
- Choose COMLI PROTOCOL and press .
- Go into Communication setup COM 1 (1.4.2.3.5.3); see tab 5 Software description and settings.
- Depending on the distance between the computer and the washer-disinfector, choose communication speed RS232 (<5 m) or RS485 (>5 m) and press . Exit the service program.

Connecting a barcode scanner

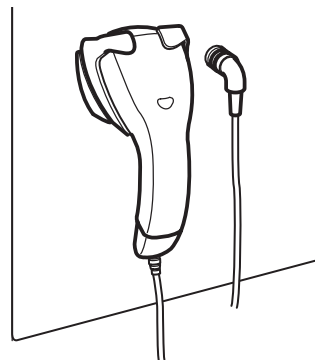
Handscanner

To connect a barcode scanner, proceed as follows.

1. Connect power to the scanner.
2. Calibrate the scanner by scanning in the barcodes below.

Scan in the top barcode. Wait for a beep, then scan in the next code. Continue until all codes have been scanned in.

3. Connect a communication cable between the scanner and port X24.



reset factory defaults

configuration enable (*)

predefined terminal selections - RS-232 - special RS-232 configurations - slave mode (9600, 7, E, 2)

Code 128 / EAN 128 - active



\46\42\46\50\41\4A\01\29\41\5A\60

Code 128 / EAN 128 - EAN 128 identifier - remove]C1 identifier

Code 93 - active

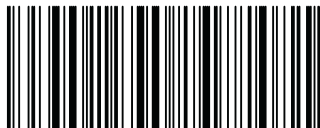
Code 39 - active (*)



\47\5A\00\41\5E\41\4C\60

RS-232 - preamble / postamble - STX / ETX

RS-232 - hardware/software protocols timeout - compose (ms): 2500



\45\53\3E\02\45\54\3E\03\51\27\04\60

RS-232 - ENQ - not used (*)

temporary configuration mode - update current configuration



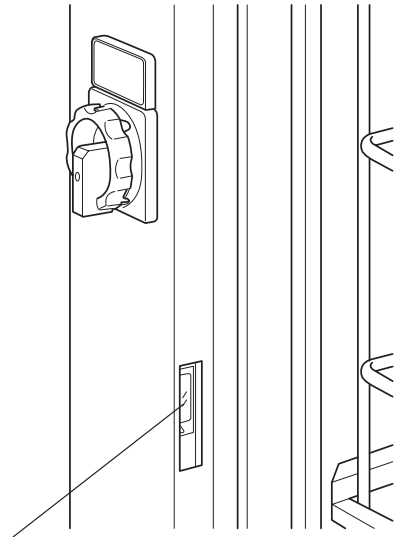
\47\3E\00\46\41\02\60

4. Set type of communication. The communication settings are done in the service program; see under tab 5 Software description and settings.
 - Go into Communication setup COM 0 (1.4.2.3.5.1); see tab 5 Software description and settings.
 - Choose Scanner and press . Exit the service program.

Barcode scanner

To connect a barcode scanner, proceed as follows.

1. Connect power to the scanner.
2. Connect a communication cable between the scanner and port X24.
3. Set type of communication. The communication settings are done in the service program; see under tab 5 Software description and settings.
 - Go into Communication setup COM0(1.4.2.3.5.1); see tab 5 Software description and settings.
 - Choose Scanner and press . Exit the service program.



Barcode scanner

Loading a program to flash memory

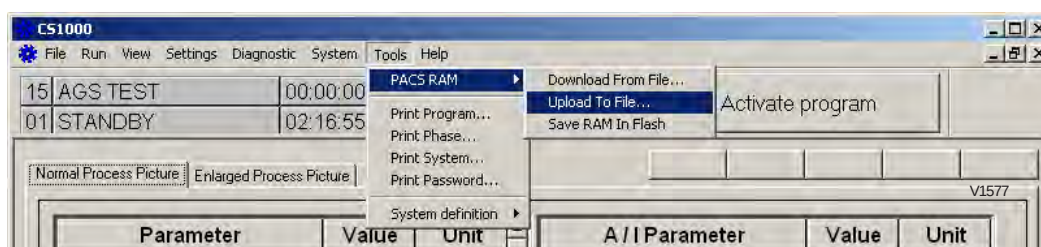
The flash memory can be loaded with new wash programs or new system programs. Loading new wash programs requires the CS-1000 program, which can be purchased from Getinge. Instructions are supplied with CS-1000. System programs and language versions are loaded with Flashloader.

Loading system programs

Note:

Always make a backup copy before starting work on updating system programs.

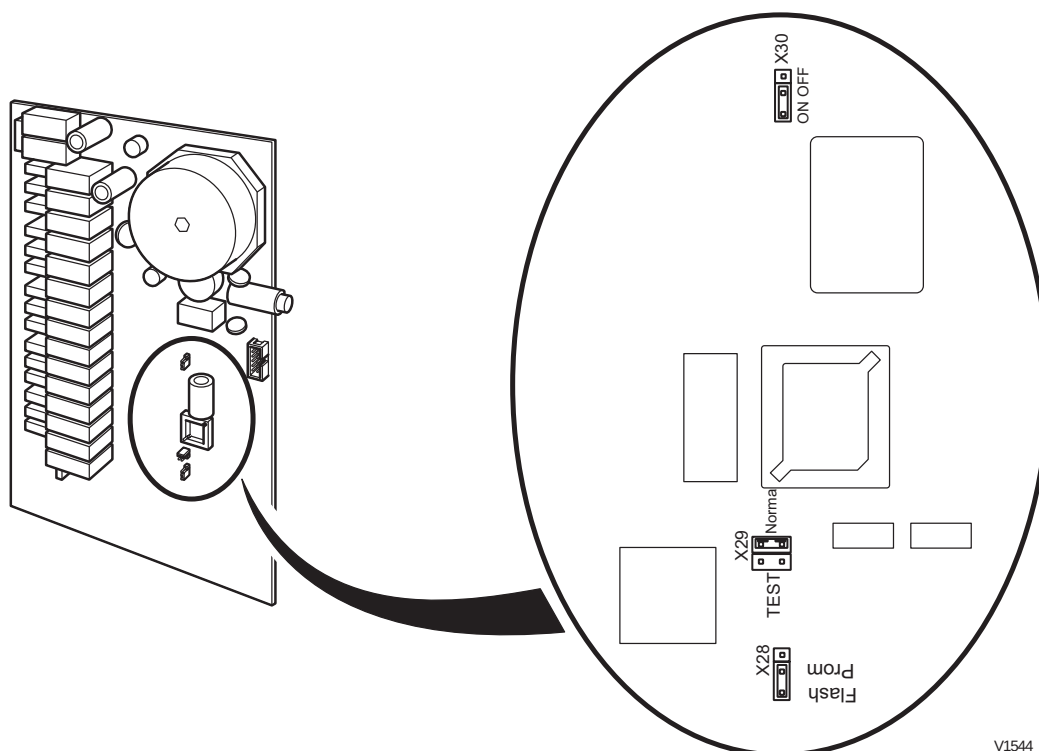
1. Connect a PC to the machine; see under Connecting a PC.
2. Check that the machine is in STANDBY mode.
3. Make a backup copy by starting CS 1000 and choosing Tools/PACS RAM/Upload To File...



4. Save the *.prm file in your chosen location.

The program will report an error during conversion. Disregard this. To check that conversion was successful, check the size of the *.prm file. The size of the file should be 84416 bytes.

5. Switch off the power to the machine with the main switch.
6. Change the jumper (X29) on the board for the PACS 300 control system from Normal to Test.



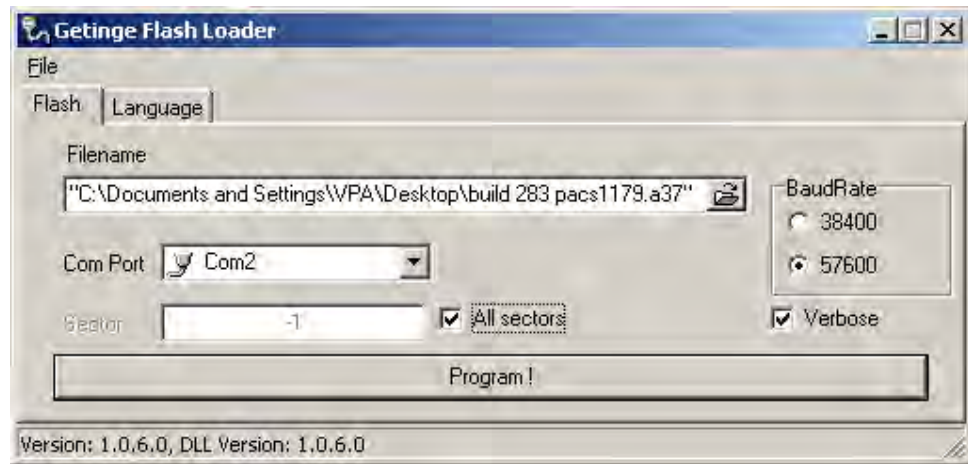
7. Switch on the power to the machine with the main switch. The display should now show:

GETINGE
Ram OK

or

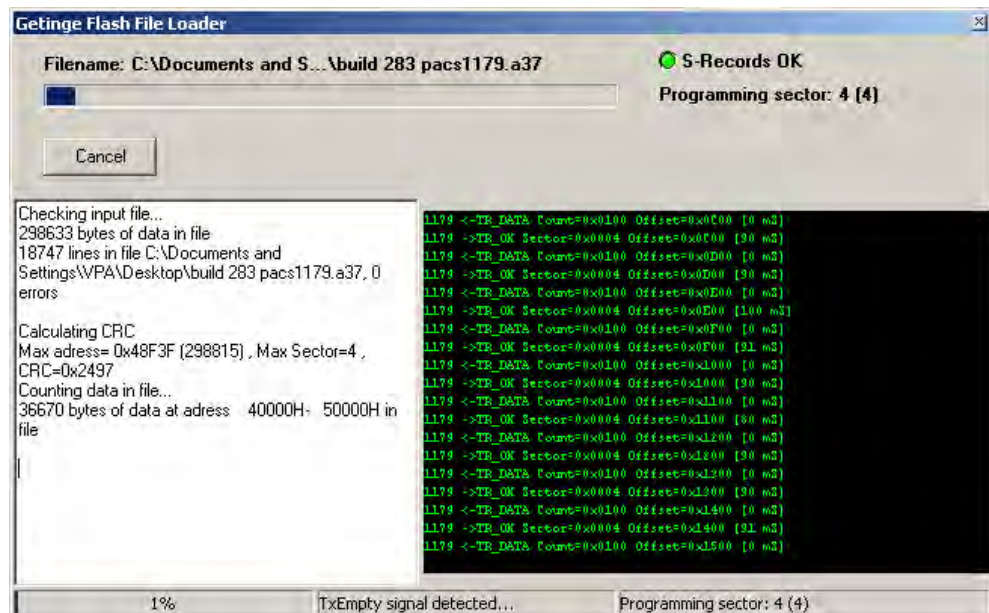
GETINGE PACS 300
Version X.XX (XXXX)

8. Start Flashloader from PC.
9. Set up as shown.

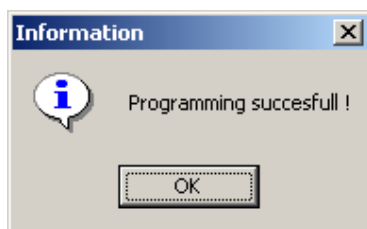


- File name Choose the right program file (*.a37).
Com port The port to which you connected the data cable to your PC.
Baud rate Choose 57600
All Sectors and Verbose must be checked (=selected).

10. Start loading by pressing Program !. The following image appears.



11. When loading is complete, the following image appears. Press OK.



V1580

12. Now the display shows:

SW Update 0x2497
Updating CRC....

- A beep is heard and the display shows:

SW Update 0x2497
CRC OK

13. Check that the battery jumper (X30) is set to ON.
14. Switch off the power to the machine with the main switch.
15. Change the jumper (X29) to Normal.
16. Switch on the power to the machine with the main switch. The display should now show:

P00

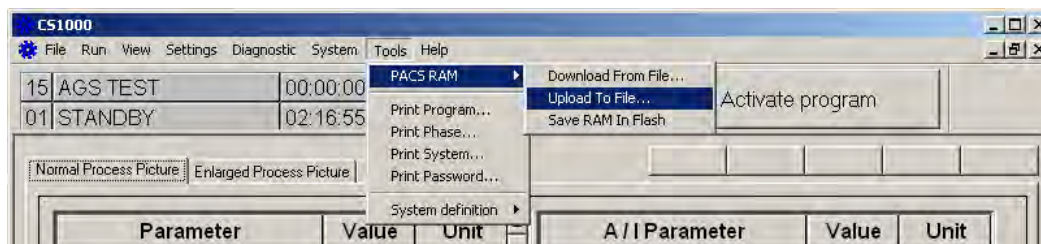
17. Close Flashloader.
18. Start CS-1000 and load wash programs; see instructions for CS-1000.

Load language files

Note:

Always make a backup copy before starting work on updating system programs.

1. Connect a PC to the machine; see under Connecting a PC.
2. Check that the machine is in STANDBY mode.

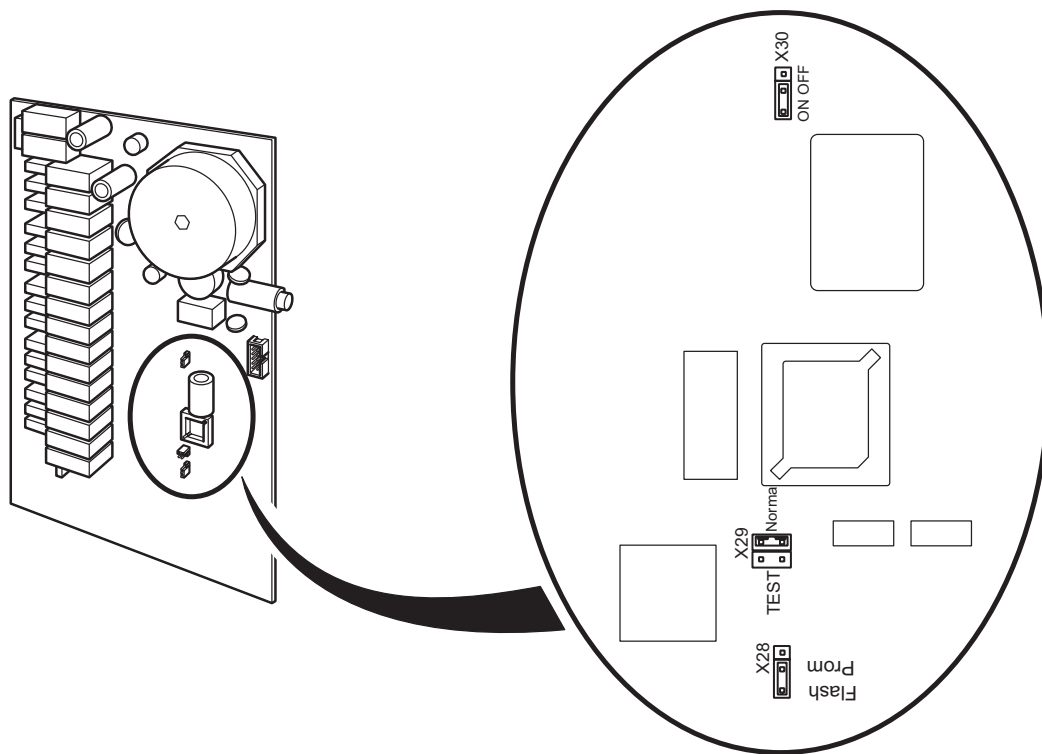


3. Make a backup copy by starting CS 1000 and choosing Tools/PACS RAM/Upload To File...^{V1577}
4. Save the *.prm file in your chosen location.

The program will report an error during conversion. Disregard this. To check that conversion was successful, check the size of the *.prm file. The size of the file should be 84416 bytes.

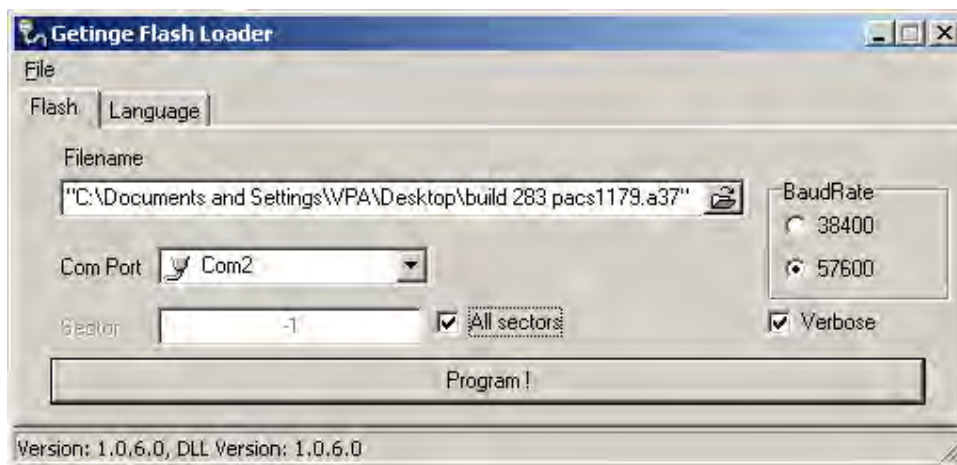
5. Switch off the power to the machine with the main switch.

6. Change the jumper (X29) on the board for the PACS 300 control system from Normal to Test.



V1544

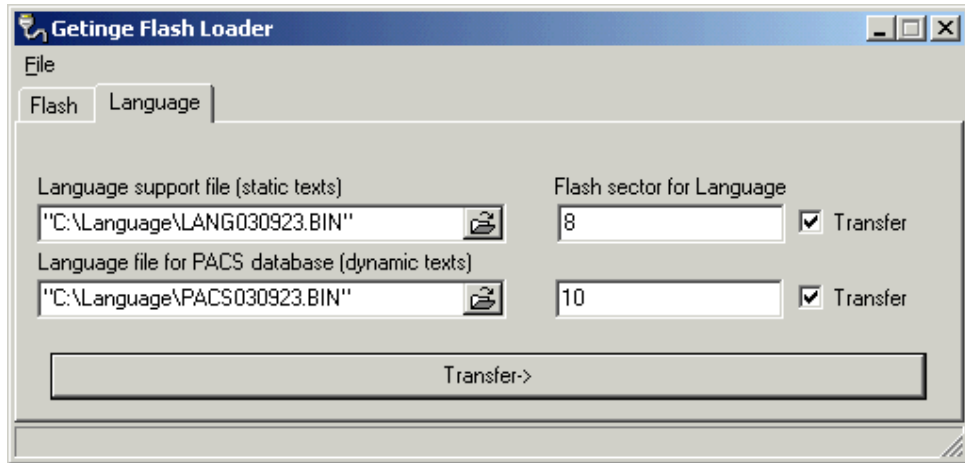
7. Set up as shown.



V1578

- File name Choose the right program file (*.a37).
- Com Port The port to which you connected the data cable to your PC.
- Baudrate Choose 57600
- All Sectors and Verbose must be checked (=selected).

8. Choose the Language tab.



V1581

9. Choose the relevant files:

- Language support file,
- Language file for PACS database.

10. Set Flash Sector for Language to 8 and 10 (as shown).

11. Check (select) Transfer.

11. Click Transfer->. The language files are now transferred to PACS 300.

12. Close Flashloader.

Cold start

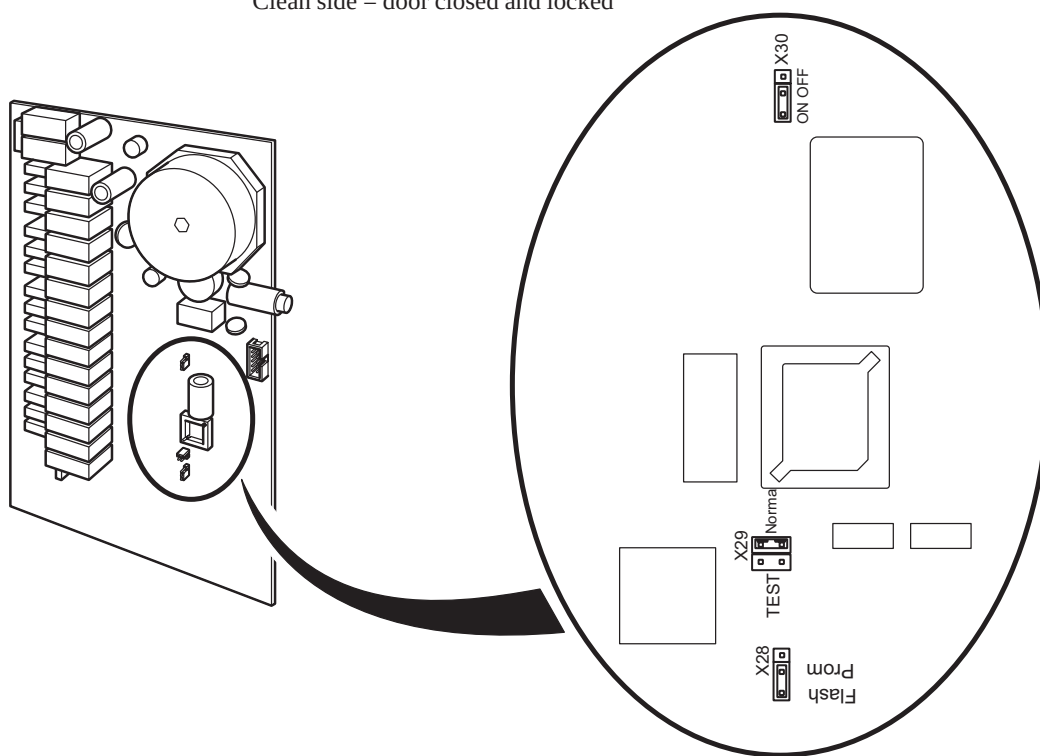
Do a cold start when the machine has hung and you cannot proceed with the program.

- 1 Switch off the power to the machine.
- 2 Move the battery jumper (X30) to Off.
- 3 Move the programming jumper (X29) from Normal to Cold.
- 4 Switch on the power.
- 5 Wait until CRC OK appears on the display.
- 6 Move the battery jumper (X30) back to On. **Note:** The power is still on.
- 7 Switch off the power.
- 8 Move the programming jumper (X29) from Cold to Normal.
- 9 Switch on the power.
- 10 Set the doors to the home position using the service program (tab 5 Software description and settings, Test digital output display (1.4.2.5.3.4)) or CS1000.

Home position for the doors:

Dirty side = door unlocked and open

Clean side = door closed and locked



V1544

Calibration

Conductivity meter

Check the output signal from conductivity meter

To check the output signal, proceed as follows.

1. Press **[E]** on the conductivity meter.
2. Enter code 22 with **[+]** and **[-]**.
3. Press **[E]**. Setup 1 appears.
4. Choose with **[+]** and **[-]** Output.
5. Press **[E]**. Sel. Type appears.
6. Choose LIN with **[+]** and **[-]**.
7. Press **[E]**.
8. Choose 4-20 mA with **[+]** and **[-]**.
9. Press **[E]**.
10. Set with **[+]** and **[-]** so that 4 mA = 0.000 μ S/cm.
11. Press **[E]**.
12. Set with **[+]** and **[-]** so that 20 mA = 200 μ S/cm.
13. Press **[E]**.
14. Press **[+]** and **[-]** at the same time to log out.

Set the cell constant

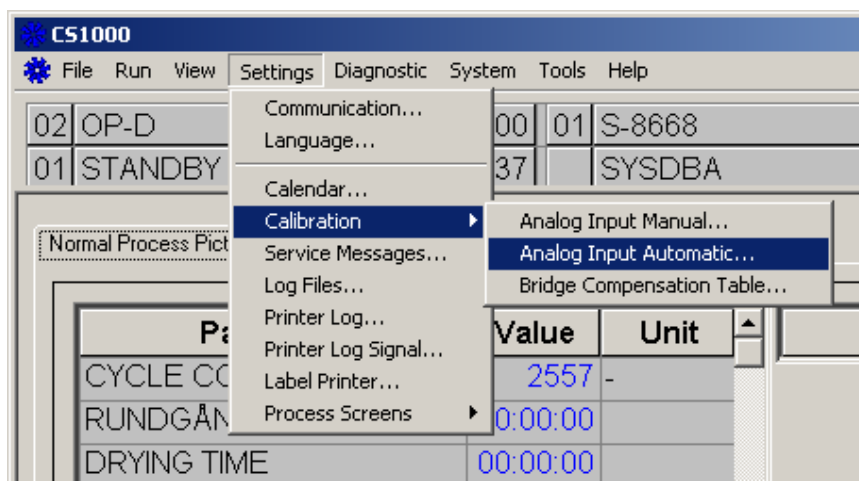
To set the cell constant, proceed as follows:

1. Press **[E]**.
2. Enter code 22 with **[+]** and **[-]**.
3. Press **[E]**. Setup 1 appears.
4. Press **[E]** until the display shows Cellconst.
5. With **[+]** and **[-]**, set the relevant cell constant; see the calibration certificate.
6. Press **[E]**.
7. Press **[+]** and **[-]** at the same time to log out.

Calibration

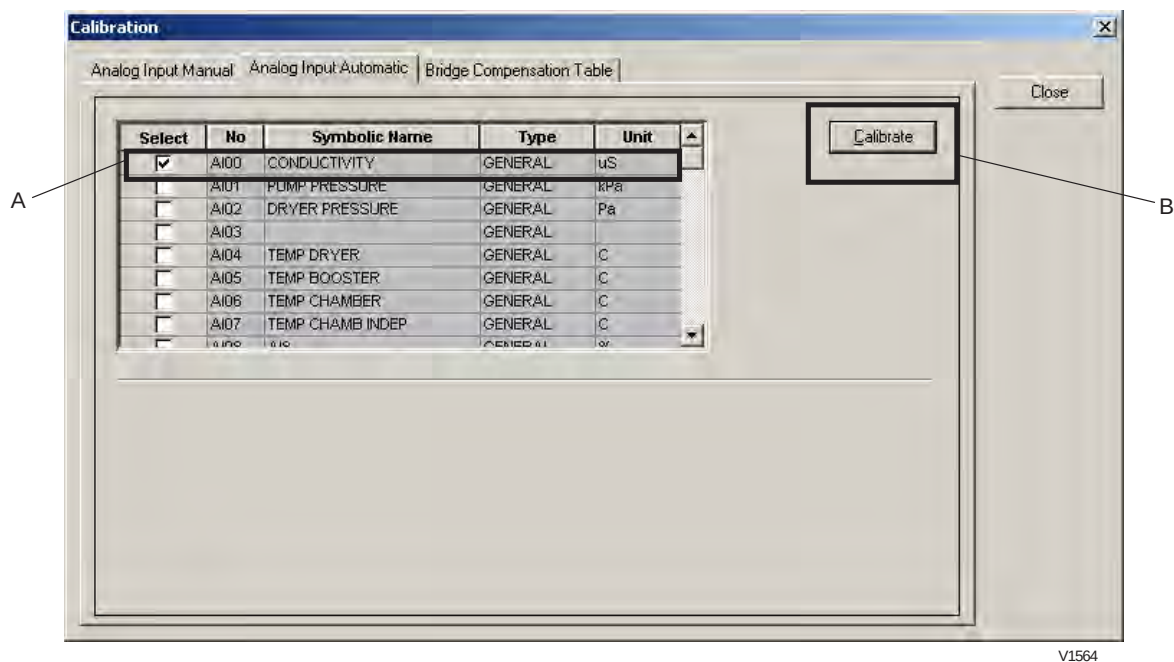
To calibrate the conductivity meter, proceed as follows.

1. Connect a PC with the CS 1000 program installed to the disinfectant.
2. Press **[E]** on the conductivity meter.
3. Enter code 22 with **[+]** and **[-]**.
4. Press **[E]**. Setup 1 appears.
5. Choose Output with **[+]** and **[-]**.
6. Press **[E]**. Sel. Type appears.
7. Choose SIM with **[+]** and **[-]**.
8. Press **[E]**.
9. Choose to 0 ... 22 mA with **[+]** and **[-]**.
10. Set 4 mA.
11. Press **[E]**.
12. Start CS 1000 and choose Settings/Calibration/Analog Input Automatic...

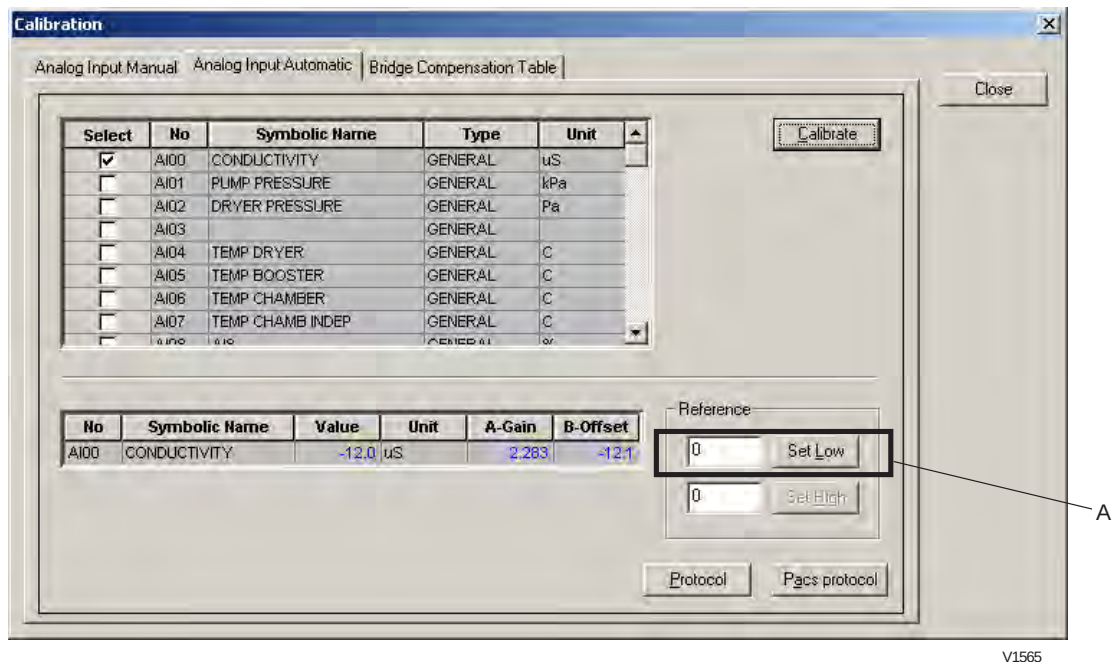


V1563

13. Click Conductivity (A) and then Calibrate (B).

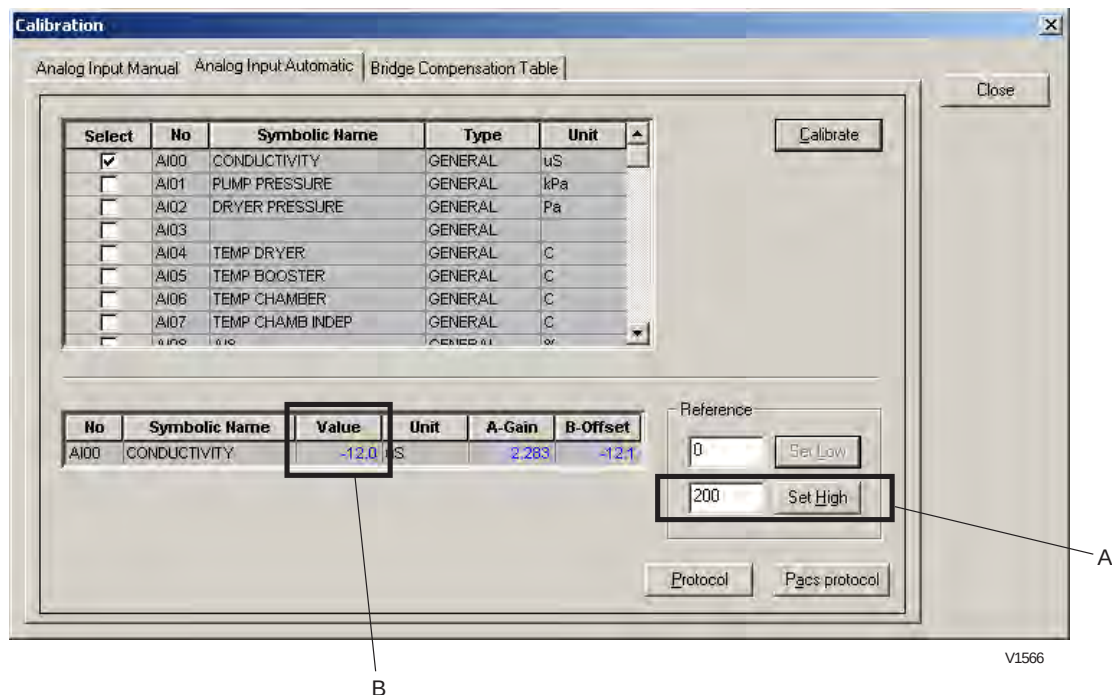


14. Enter the value 0 (A) and click Set Low.



15. Set 20 mA on the conductivity meter with $\boxed{+}$ and $\boxed{-}$.

16. Enter 200 (A) in CS 1000 and click Set High.



17. Check that the value (B) rises to 200.

18. Log off CS 1000.

19. Choose Output with $\boxed{+}$ and $\boxed{-}$.

20. Press $\boxed{E}$. Sel. Type appears.

21. Choose LIN with $\boxed{+}$ and $\boxed{-}$.

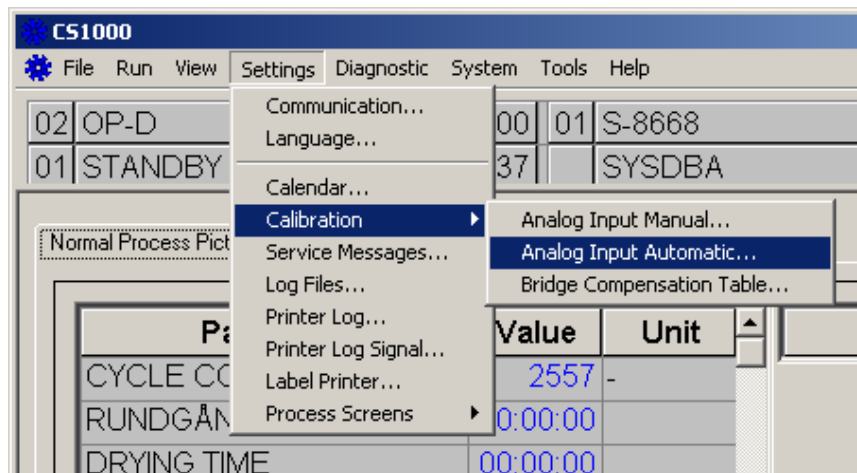
22. Press $\boxed{E}$.

23. Press $\boxed{+}$ and $\boxed{-}$ together several times until you are logged out of the conductivity meter.

Pressure sensor for circulation pump

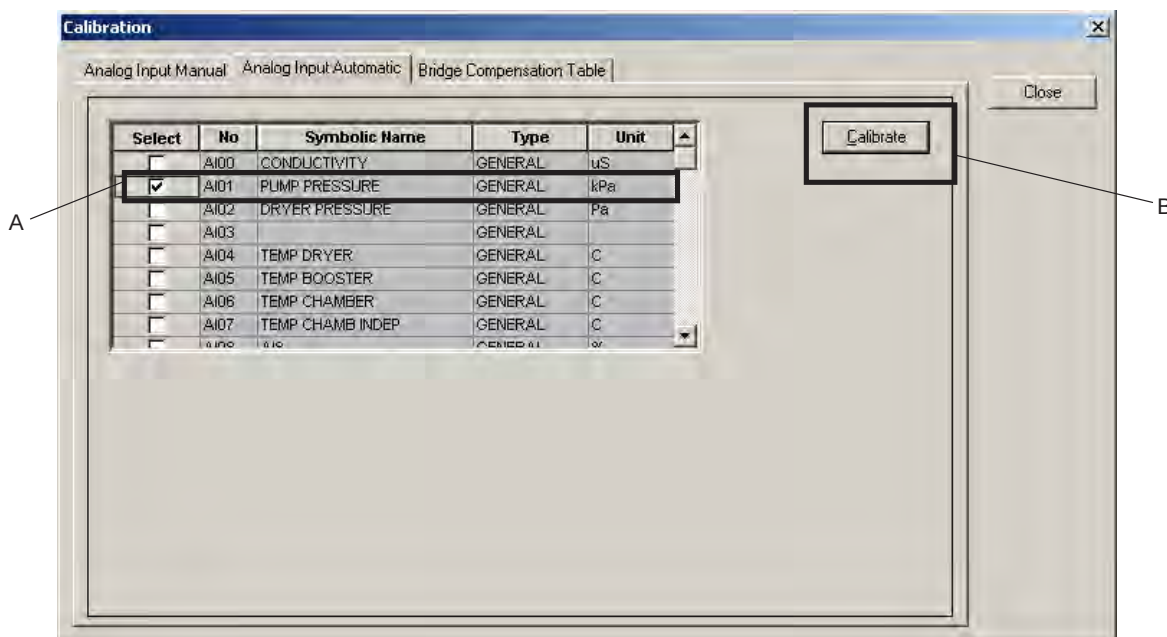
To calibrate the pressure sensor for the circulation pump, proceed as follows.

1. Connect a PC with the CS 1000 program installed to the disinfectant.
2. Connect a process simulator to A01-X2;
+ to 2
- to 5.
3. Set the process simulator to 4 mA.
4. Start CS 1000 and choose Settings/Calibration/Analog Input Automatic...



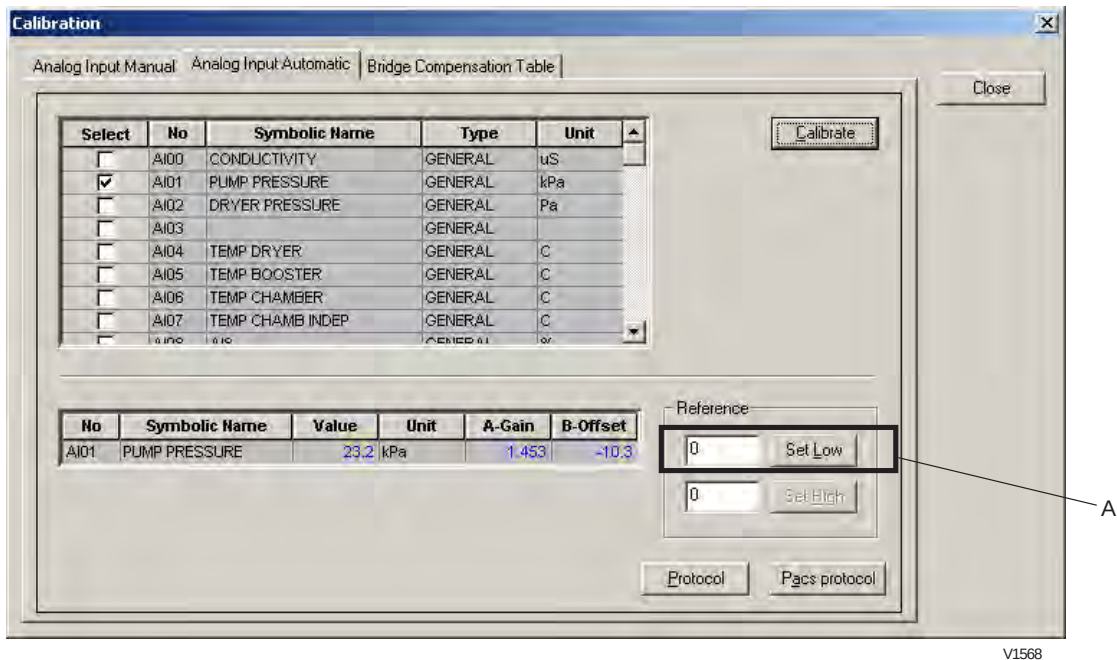
V1563

5. Click Pump pressure (A) and then Calibrate (B).



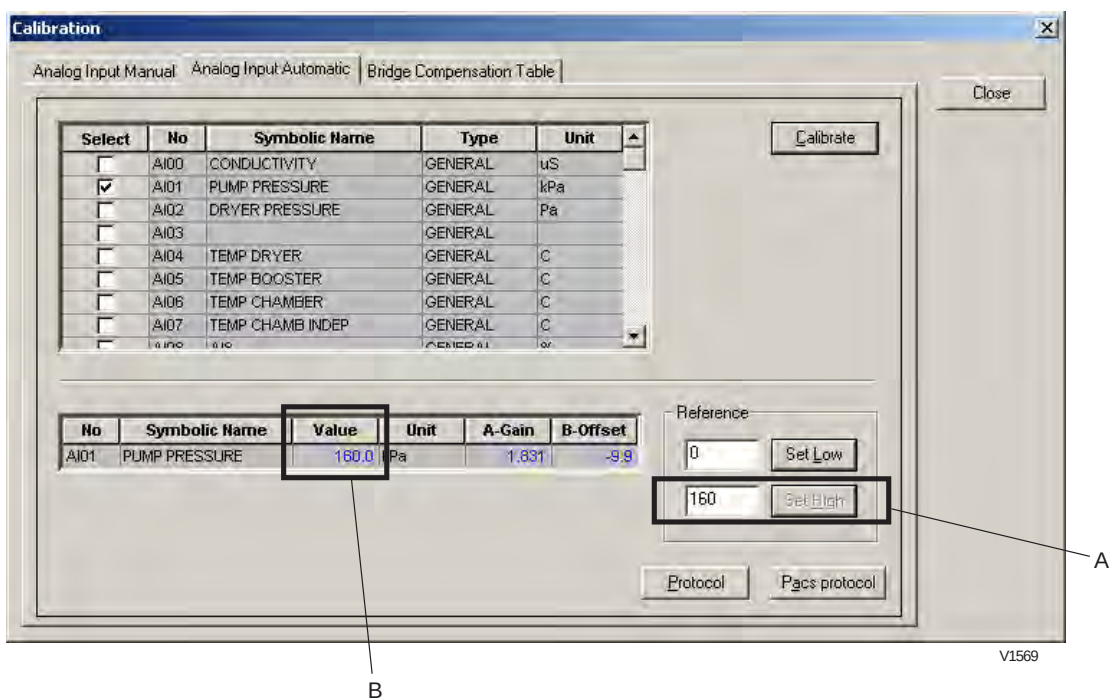
V1567

6. Enter the value 0 (A) and click Set Low.



7. Set the process simulator to 20 mA.

8. Enter 160 (A) in CS 1000 and click Set High.



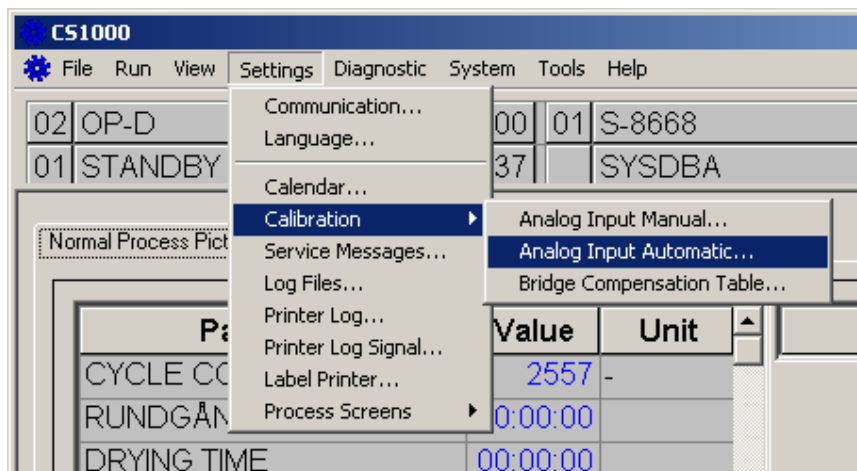
9. Check that the value (B) rises to 160.

10. Log off CS 1000.

Temperature sensor – with resistor

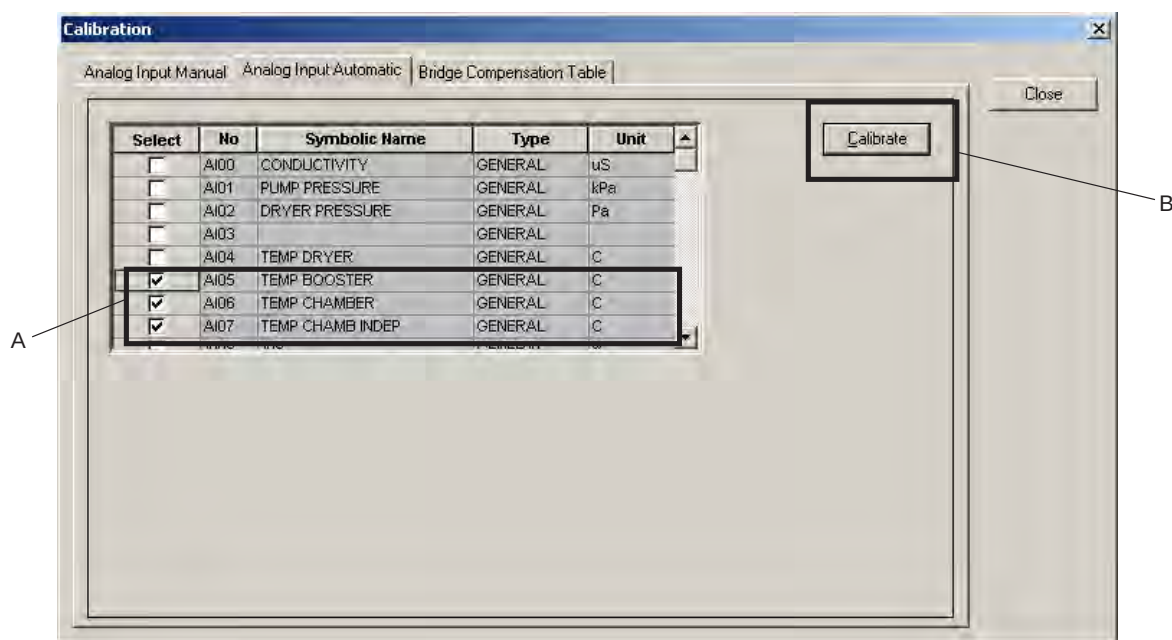
Proceed as follows to calibrate the temperature sensors with the aid of resistors:

1. Connect a PC with the CS 1000 program installed to the disinfectant.
2. Insert resistors for 20 °C at the following places:
 - A01-X7 Chamber temperature (two sensors)
 - A01-X6 Booster tank
 - A01-X5 Dryer
3. Start CS 1000 and choose Settings/Calibration/Analog Input Automatic...



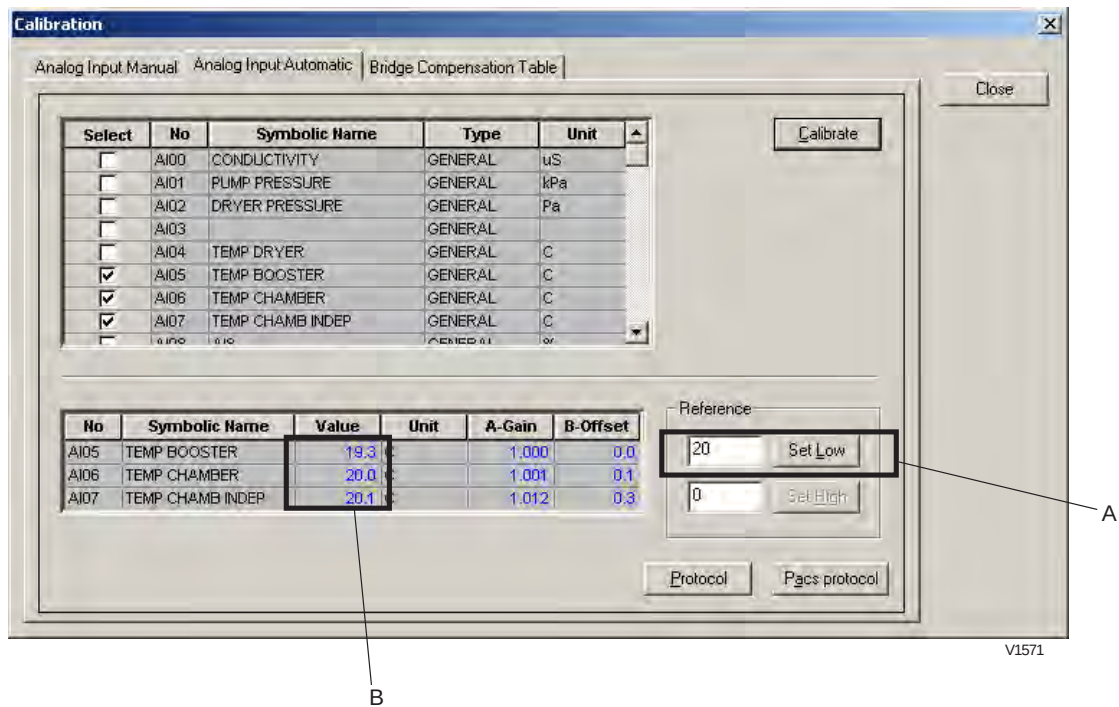
V1563

4. Click Temp booster, Temp chamber and Temp chamb indep(A), then click Calibrate (B).



V1571

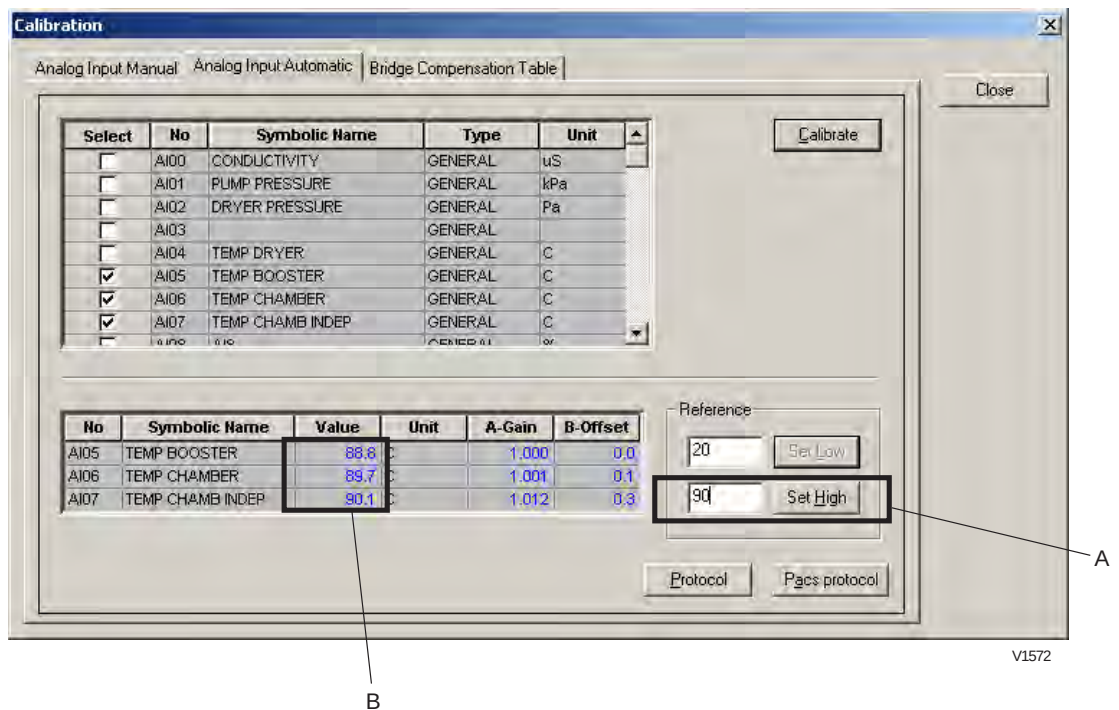
5 Enter the value 20 (A) and click Set Low.



6 Check that the value (B) rises to 20.

7 Replace resistors for 20 °C with resistors for 90 °C.

8 Enter 90 (A) in CS 1000 and click Set High.



9. Check that the value (B) rises to 90.

10. Log off CS 1000.

11. Remove the resistors and reinstate the temperature sensors.

Temperature sensors – with ice bath and oil bath

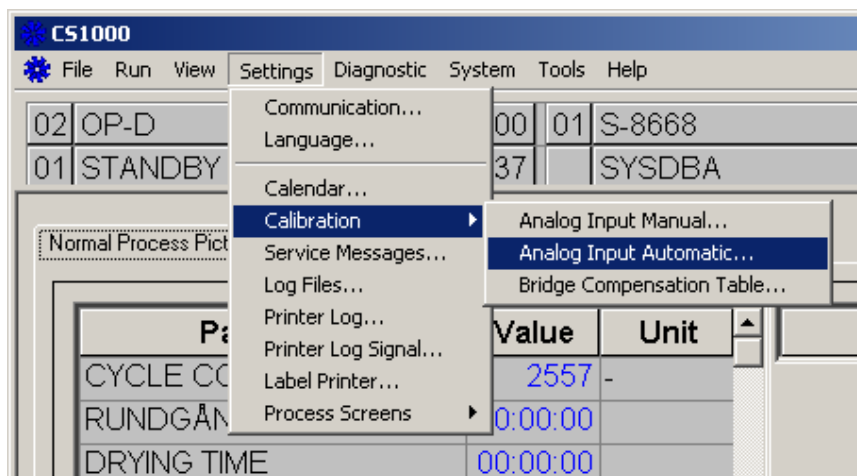
Proceed as follows to calibrate the temperature sensors with the aid of resistors:

1. Connect a PC with the CS 1000 program installed to the disinfectant.
2. Prepare an ice bath and an oil bath.

The ice bath must consist of crushed ice in a bowl of cold water. The bath must stand for at least 20 minutes so that the temperature can stabilise.

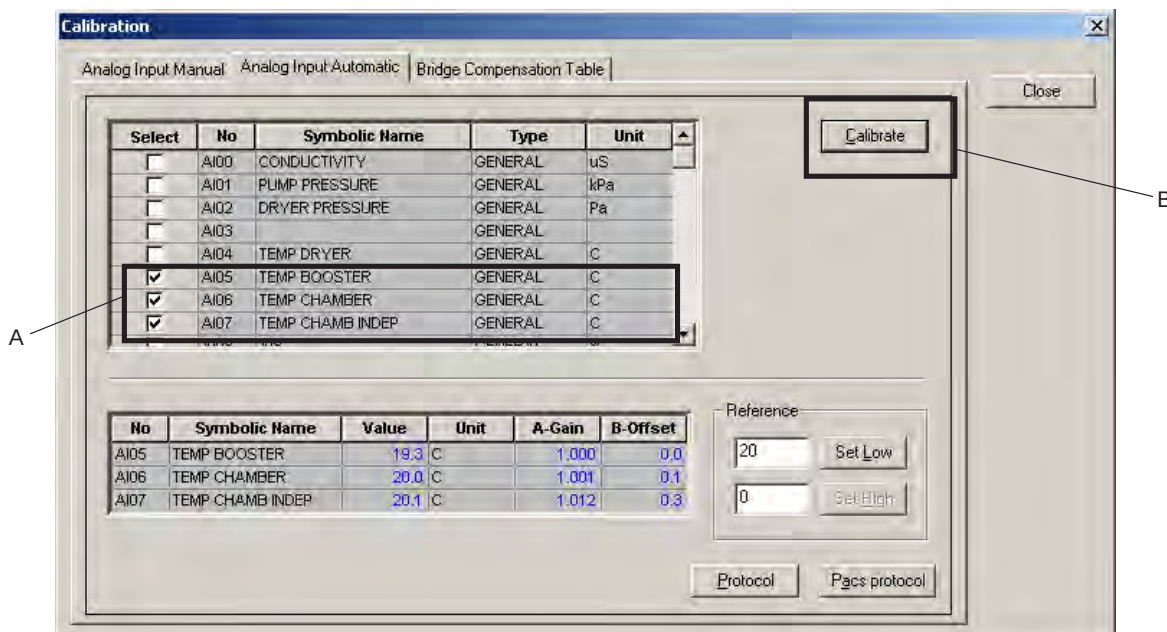
The oil bath must be switched on for at least 45 minutes at the set temperature (100 °C) to stabilise the temperature.

3. Remove the temperature sensors from the disinfectant. Tape the sensors together.
4. Lower the temperature sensors into the ice bath together with an external thermometer.
5. Start CS 1000 and choose Settings/Calibration/Analog Input Automatic...



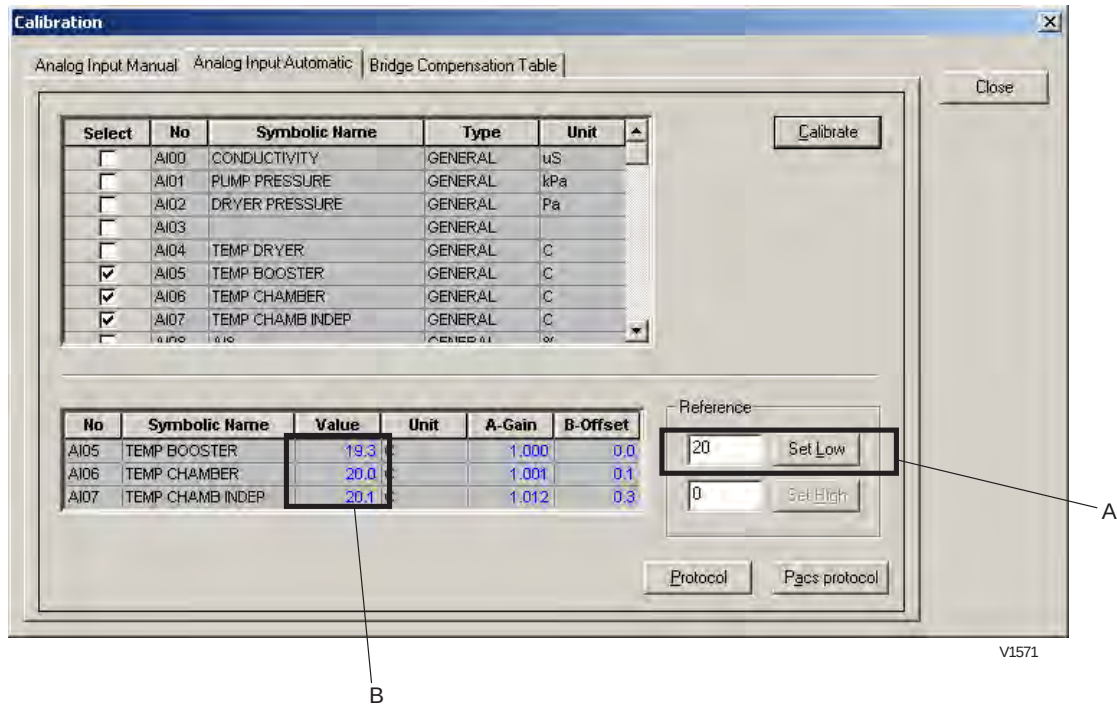
V1563

6. Click Temp booster, Temp chamber and Temp chamb indep(A), then click Calibrate (B).

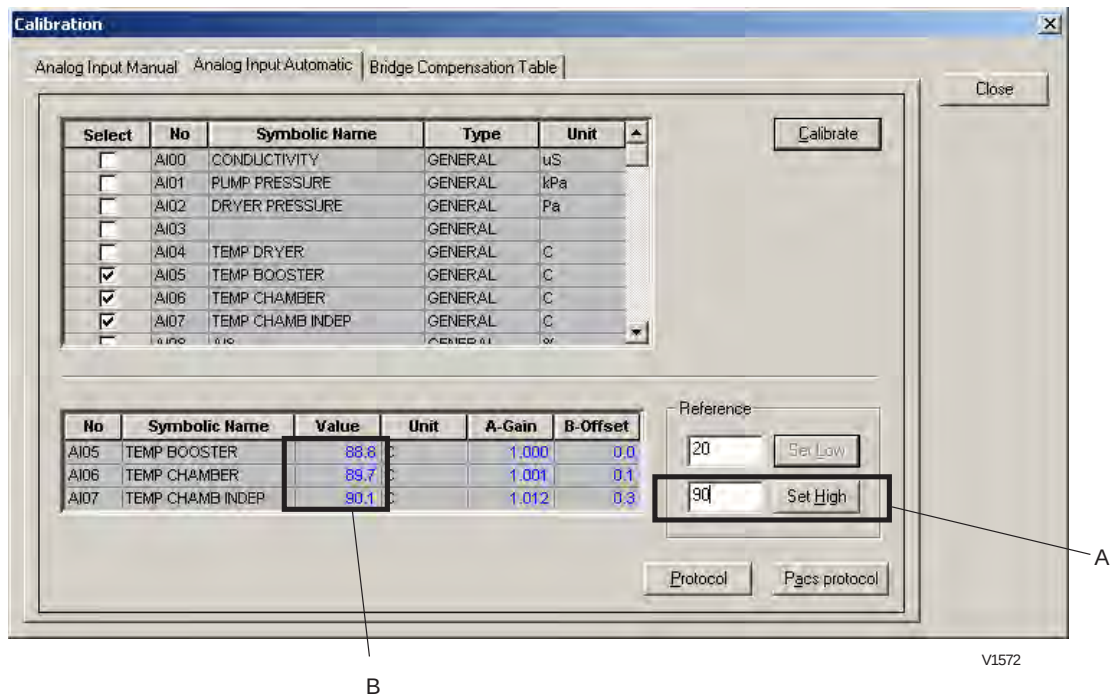


V1570

- 7 Check that the reading of the external thermometer stabilises. Enter the reading of the external thermometer (A) and click Set Low.



- 8 Check that the value (B) rises to the set value.
- 9 Move the temperature sensors and the external thermometer to the oil bath. Check that the reading of the external thermometer stabilises. Enter the reading of the external thermometer (A) and click Set High.

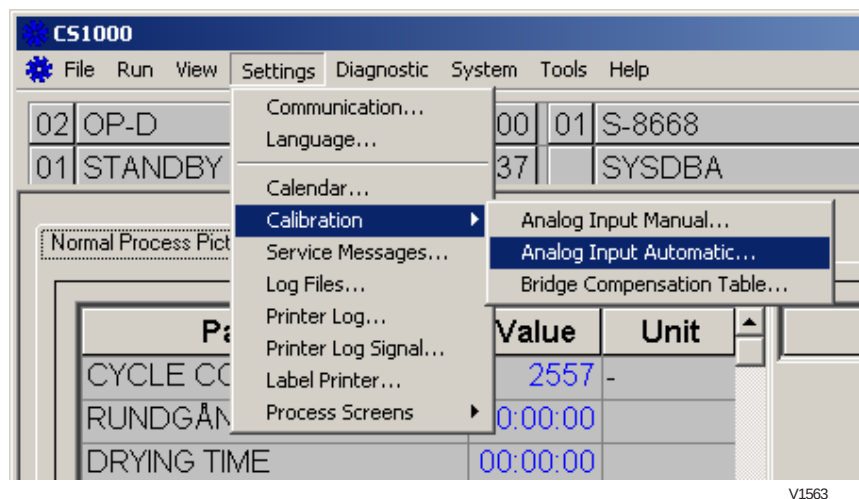


10. Check that the value (B) rises to the set value.
11. Log off CS 1000.
12. Re-instate the temperature sensors.

Differential pressure gauge for dryer

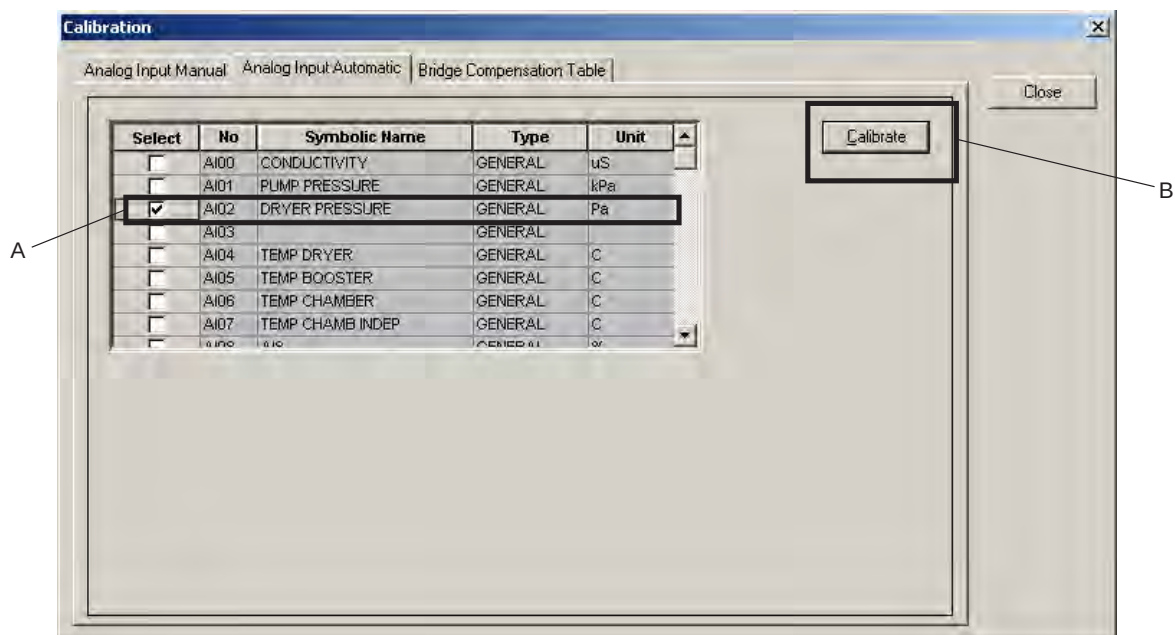
To calibrate the differential pressure gauge for the dryer, proceed as follows.

1. Connect a PC with the CS 1000 program installed to the disinfector.
2. Close the machine doors.
3. Connect an external differential pressure gauge in parallel with the existing gauge on the machine. Zero the external differential pressure gauge.
4. Start CS 1000 and choose Settings/Calibration/Analog Input Automatic...



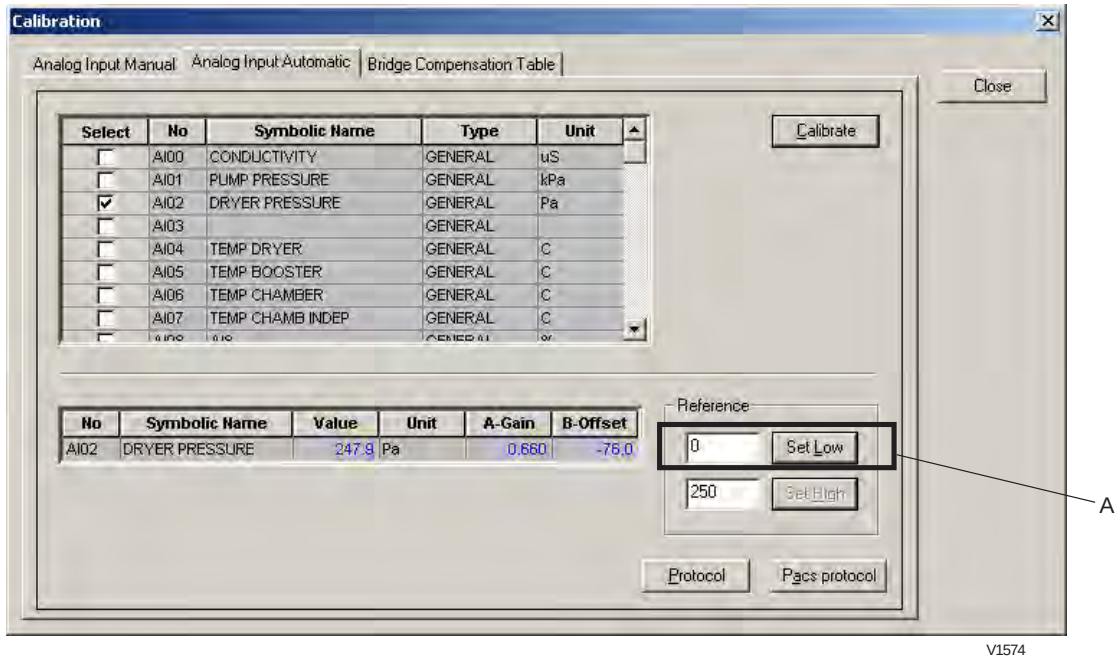
V1563

5. Click Dryer pressure (A) and then Calibrate (B).



V1573

6. Enter the value 0 (A) and click Set Low.



7. Start the machine fan manually as follows:

>SETUP

Scroll to SETUP with . Press .

>SYSTEM
ABOUT

Scroll to SYSTEM with . Press .

>ENTER PASSWORD

Enter password. Press .

>SERVICE
SAVE TO RAM FLASH

Scroll to SERVICE with . Press .

SERVICE MESSAGES
>DIAGNOSTICS

Scroll to DIAGNOSTICS with . Press .

>TEST ANALOG OUT
TEST DIGITAL IN

Scroll to TEST ANALOG OUT with . Press .

>01 FAN SPEED
AUT 100%

Scroll to 01 FAN SPEED with . Press .

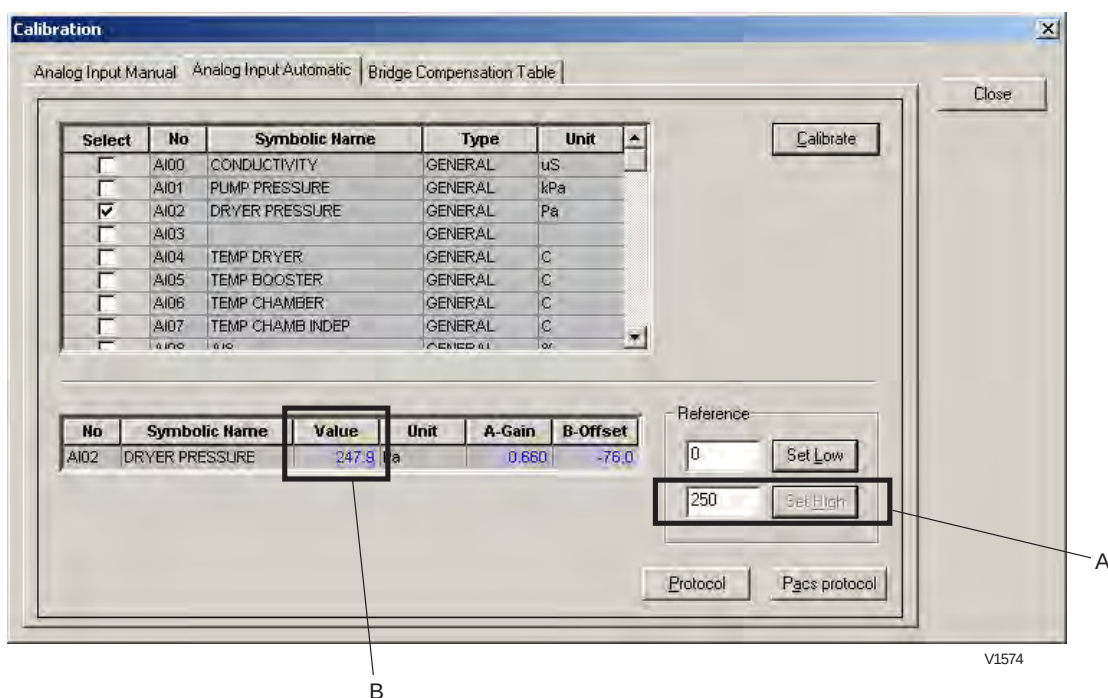
>01 FAN SPEED
MAN 75%

Change AUT to MAN with . Set fan speed to 75 %.

8. Check that the reading of the external differential pressure gauge stabilises. Enter the reading of gauge (A) in CS 1000 and click Set High.

The reading should be between 200 and 300 Pa.

If it is too high, the filter may be clogged; if it is too low, there may be a hole in the filter.



9. Check that the value (B) rises to the reading of the external differential pressure gauge.

10. Log off CS 1000.

11. Reinstate the fan.

>01 FAN SPEED
MAN 0%

Set fan speed to 0 %. Change MAN to AUT with . Press .

12. Log out.

13. Reinstate the differential pressure gauge.

Replacing a temperature sensor



This must only be done by authorised personnel.



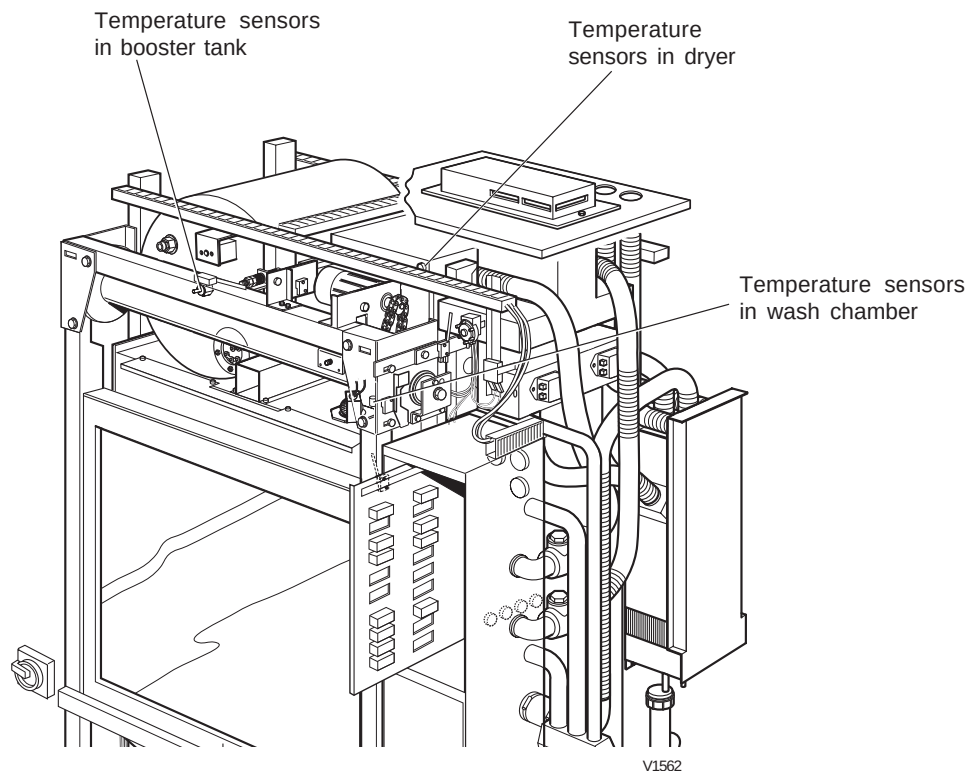
The machine is connected to the electricity supply and some components are live.

In wash chamber and dryer

- Remove the old temperature sensor by pulling it out of the seal.
- Push the new sensor in through the seal.

In booster tank

- Remove the old temperature sensor by unscrewing the gland pulling the sensor out.
- Push in the new sensor and tighten the gland.



The booster tank contains hot water. This may cause scalding injuries if proper procedures are not followed.

When servicing the booster tank and/or its associated components, there is a risk of contact with hot water. The booster tank must therefore be drained before servicing.

To do this, clamp the hose above the solenoid valve. Disconnect the hose at the solenoid valve and allow the hot water to run off into a drain.

Door

Position and operation, door switches

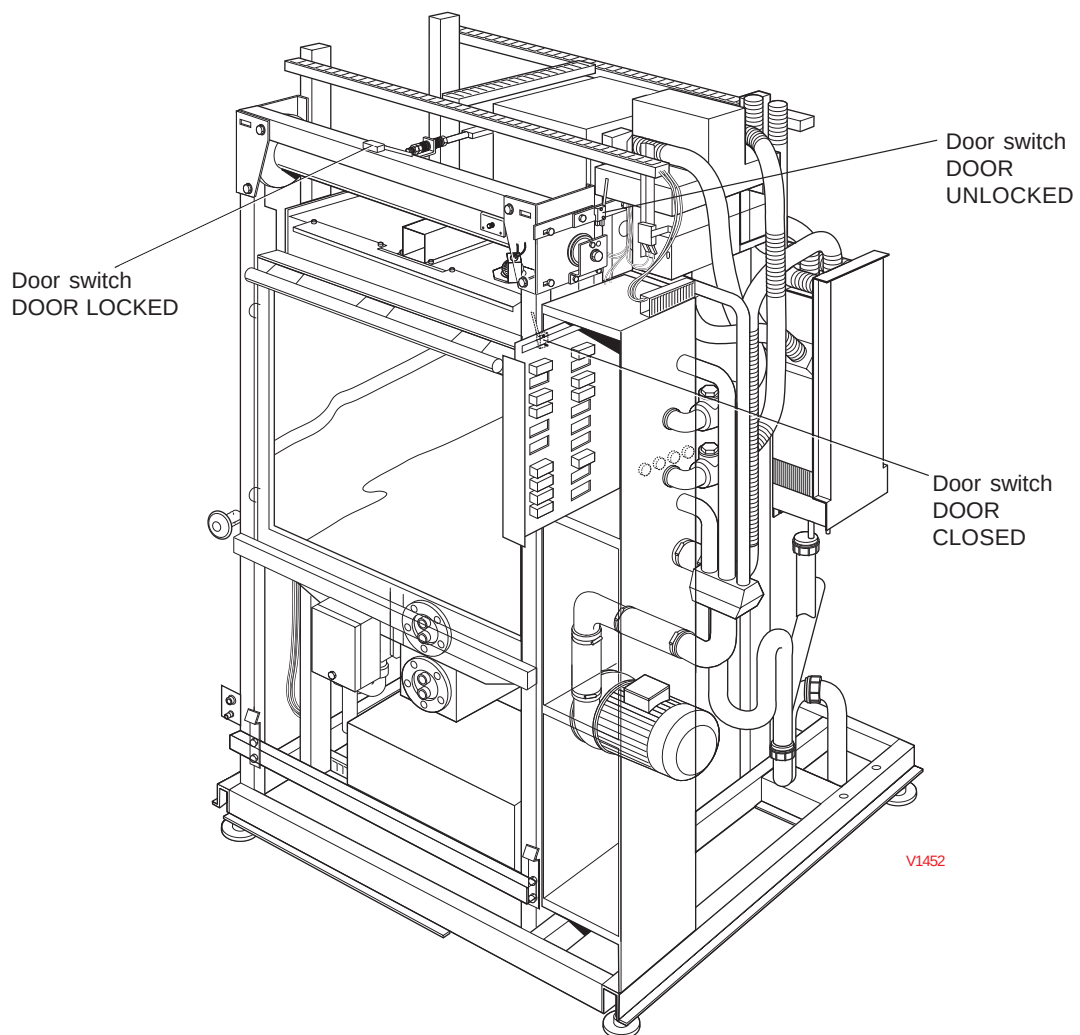


This must only be done by authorised personnel.



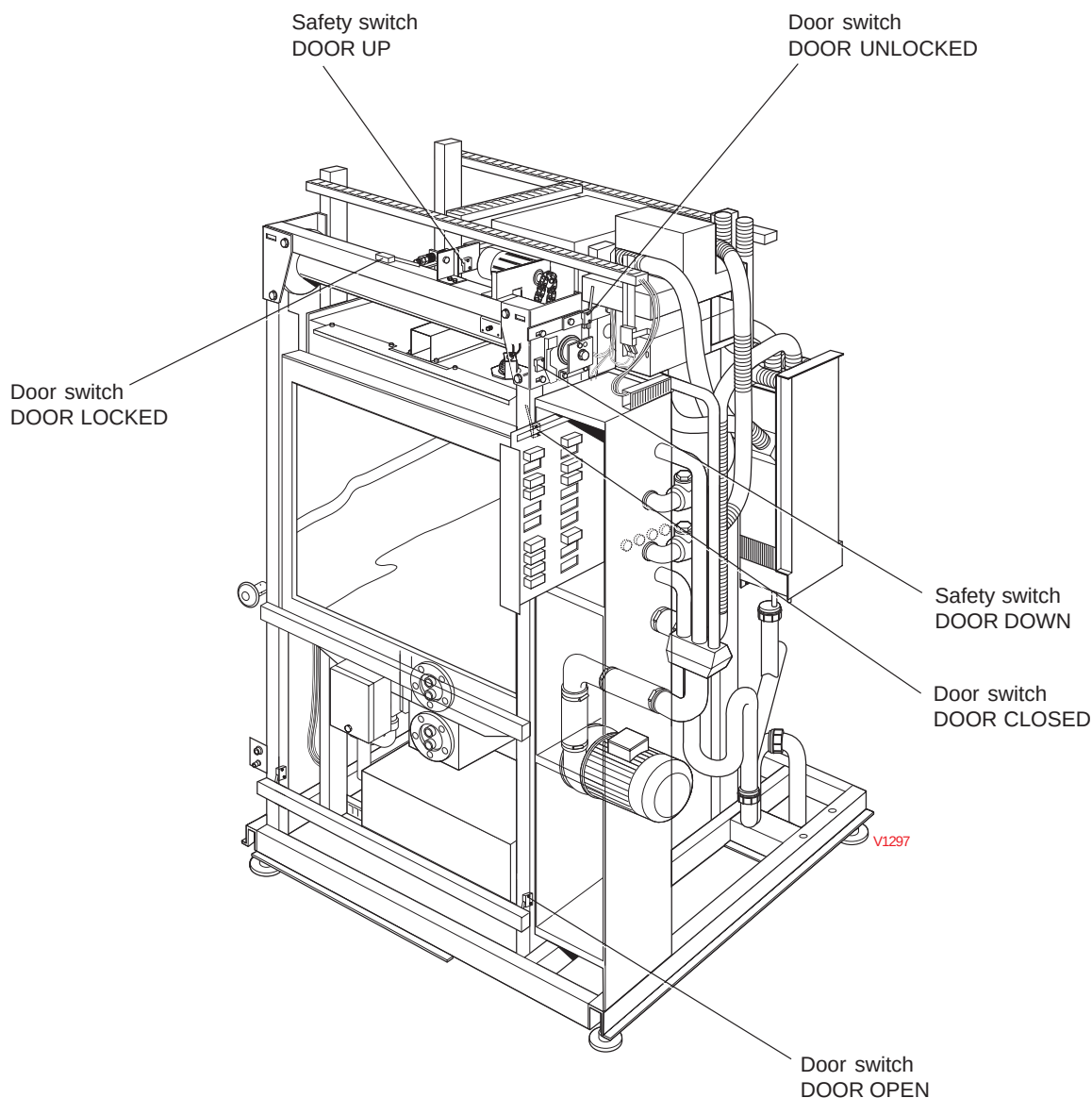
Before starting work, make sure that the machine is isolated from the electric power supply.

The illustration show which door switches are fitted to the machine with manual or automatic door.



Manual door:

When the door is at its top position, the DOOR CLOSED and DOOR UNLOCKED switches are activated. When the motor has pulled the door into its inner position, the DOOR LOCKED switch is activated.



Automatic door:

When the door is at its bottom position, the DOOR OPEN switch is activated and when the door is in the top position the DOOR CLOSED and DOOR UNLOCKED switches are activated. When the motor has pulled the door into its inner position, the DOOR LOCKED switch is activated.

If the door is obstructed on its way up and the force on the door is greater than 150 N, the DOOR UP safety switch stops the door. When the door is stopped, the motor drive unit turns around its fixing point and activates the safety switch. For adjustment, see under "Adjusting safety switches, DOOR UP".

If the door is obstructed on its way down, the DOOR DOWN safety switch stops the door. The door is suspended on two wires. If the door is obstructed, the wires continue to be paid out, and a spring force activates the DOOR DOWN safety switch, stopping the door.

Adjusting door switches



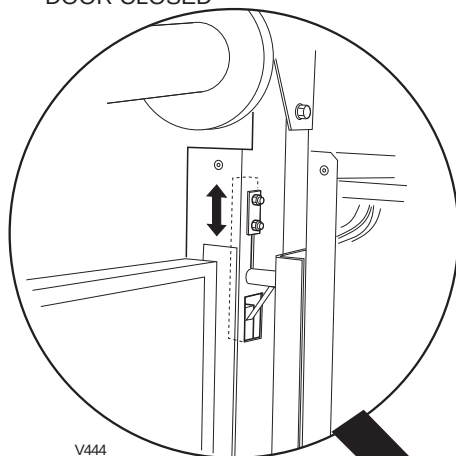
This must only be done by authorised personnel.



Before starting work, make sure that the machine is isolated from the electric power supply.

Check that the respective microswitches are activated. Adjust if necessary.

Door switch
DOOR CLOSED



Door switch
DOOR LOCKED

Safety switch
DOOR UP

Door switch
DOOR UNLOCKED

Door switch
DOOR OPEN

V1297

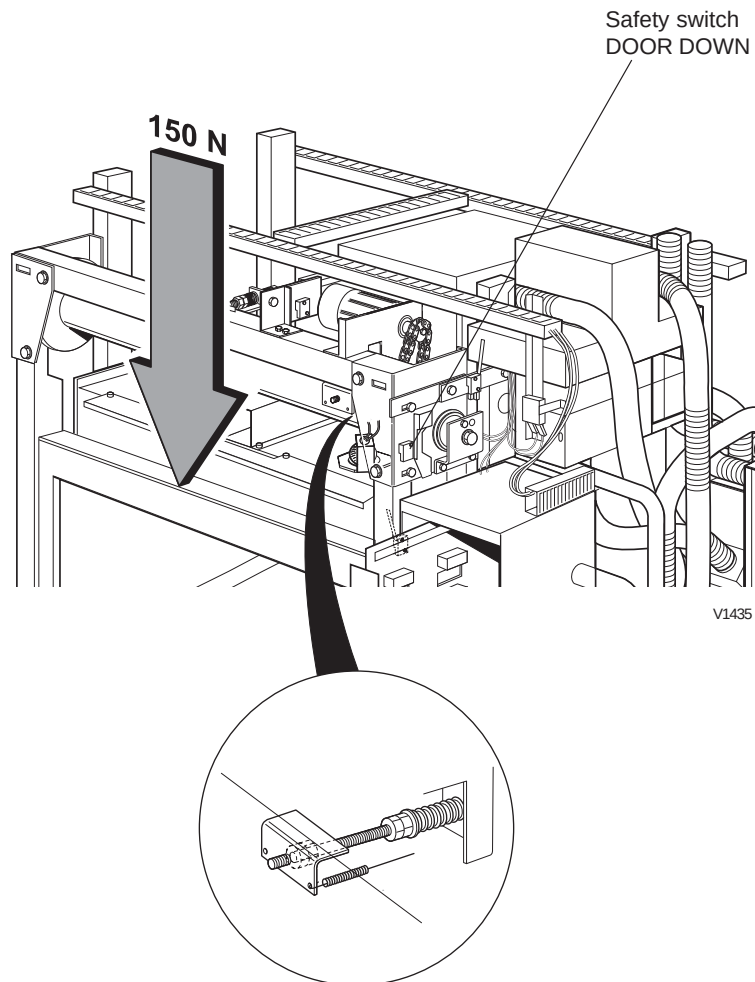
Adjusting DOOR UP safety switch



This may only be done by authorised personnel.

The DOOR UP safety switch is fitted only to machines with automatic door.

To prevent damage, the spring must be adjusted so that the door stops when a force of 150 N is applied to the door when the door is moving up. The illustration below shows how to adjust the spring.



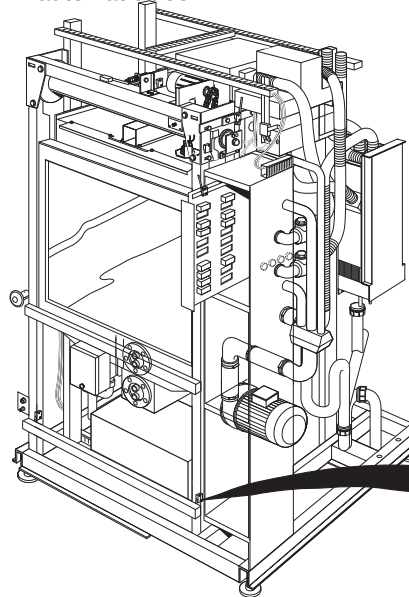
Replacing the door seal



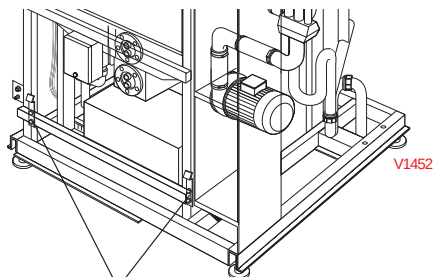
This must only be done by authorised personnel.

- Automatic door: Remove door switches and bolts. (If a loading/unloading unit is installed, there are door switches on the left-hand side only). This is so that the door can be pushed down far enough to release the seal.
- Manual door: Remove bolts and leaf springs so that the door can be pushed down far enough to release the seal.
- Push the door down to its lower position.
- Pull off the old seal.
- Fit the new seal and press it firmly into place.
- Automatic door: Install door switches and bolts.
- Manual door: Install bolts and leaf springs.

Machine with automatic door:



Machine with manual door:



Leaf springs

Door switch

Bolt

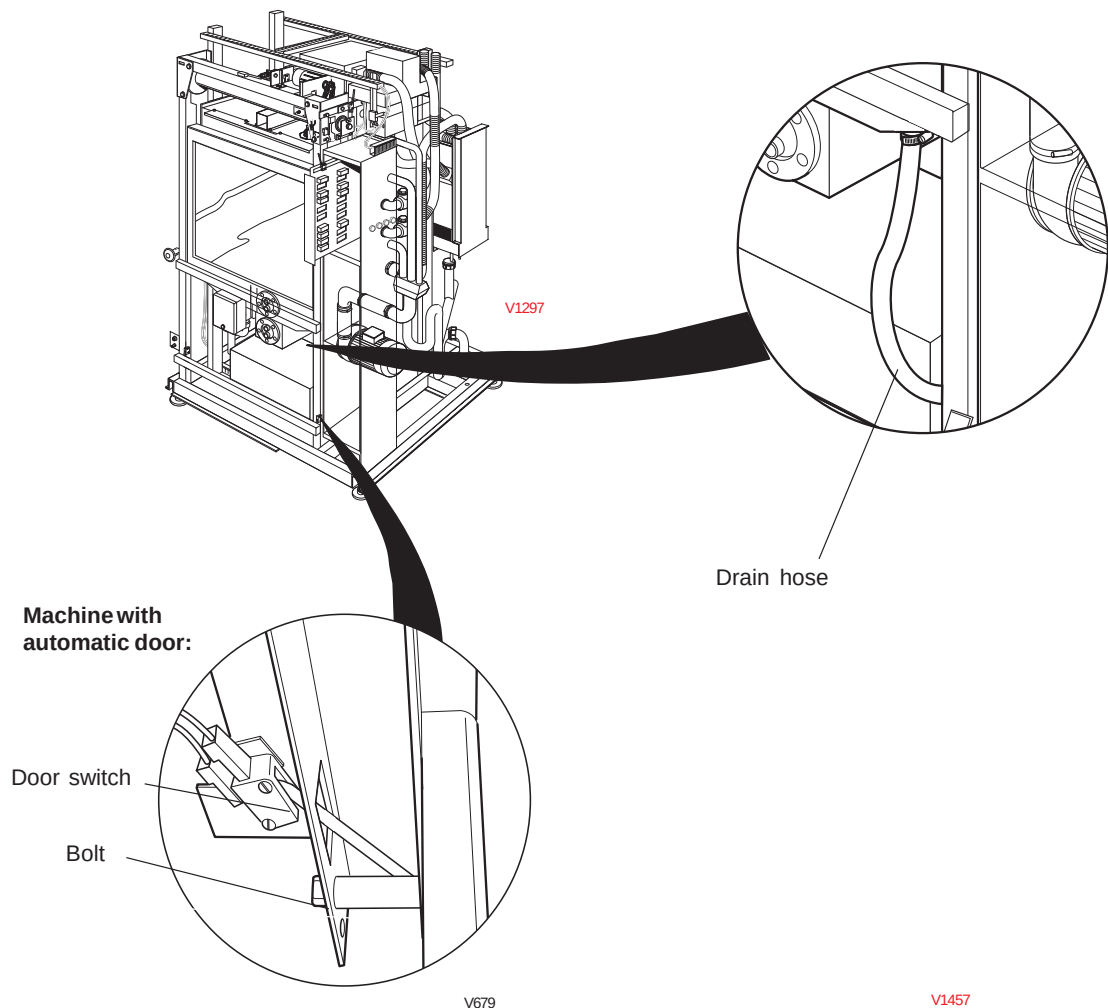
V679

Removing the door



This must only be done by authorised personnel.

- Remove the front panels.
- Automatic door: Remove door switches and the door switches of the loader/unloader (if there is one). Remove bolts.
- Remove leaf springs, bolts and spacers in the lower part of the frame.
- Remove the drain hose.
- Automatic door: Access the service program; Test the operation of the door.
- Move the door to the half-open position.
- Separate the door frame and the door closing mechanism.
- Free the door frame at the top edge. NOTE: Secure the frame so that it cannot fall forwards.
- Free the bottom edge of the door frame. NOTE: Secure the frame so that it cannot fall down and suffer damage.
- The frame and door assembly can now be lifted out and placed on the floor or on a table.
- Release the wire from the door and hoist mechanism.



Adjusting the door closing force

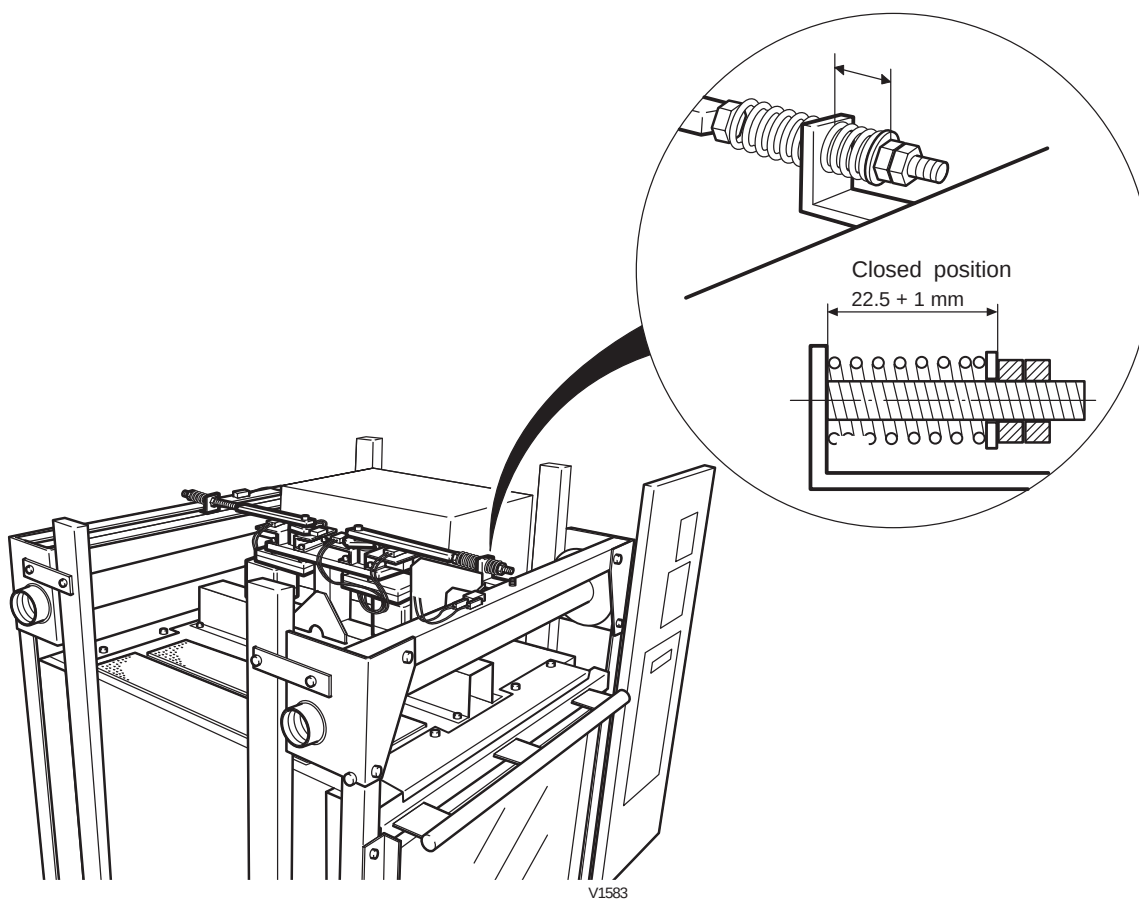


This must only be done by authorised personnel.

When door is in its top position, the motor pulls the door in from the outer to the inner position. The force with which it does this is adjusted with a spring as shown below.

Note:

The spring must never fully compressed.



Adjusting manual door



This must only be done by authorised personnel.

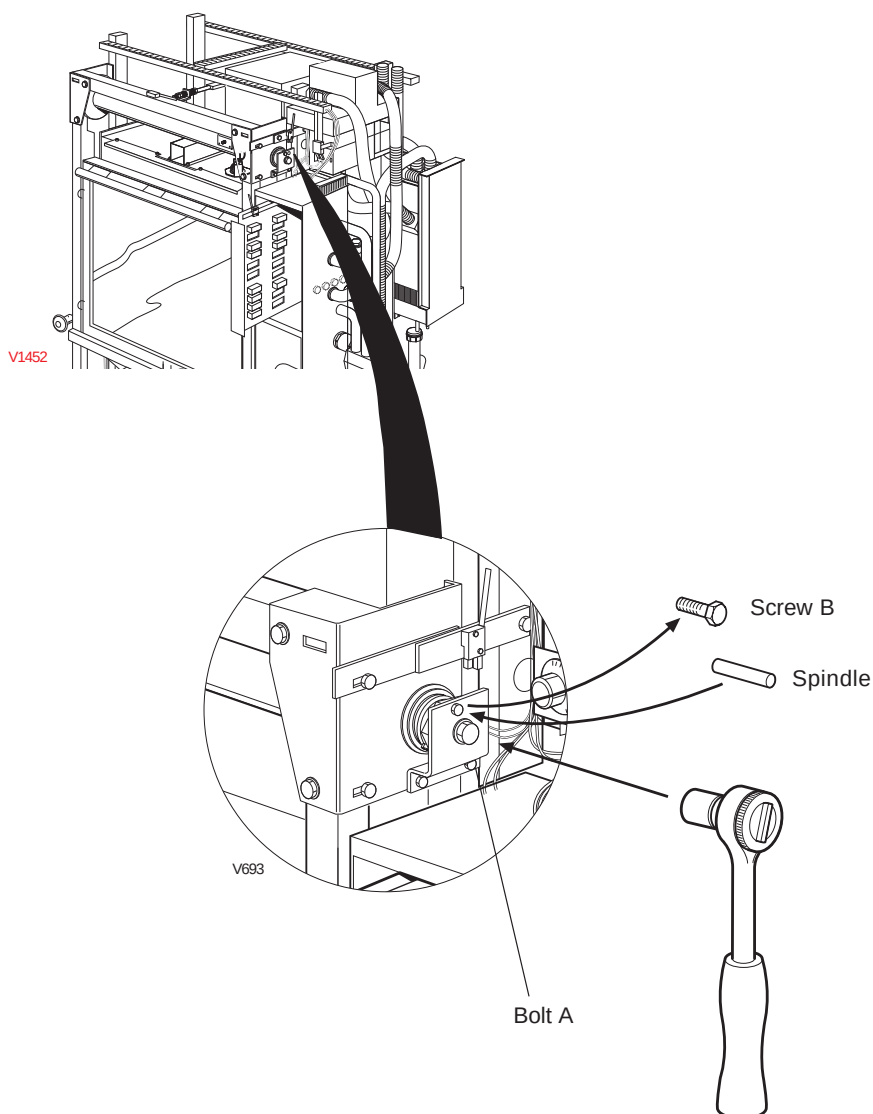
The door is held in its bottom position by two leaf springs. When the door is pushed up, it must stop about 10 cm from its top position. The door must always be moved up manually for the last part of its travel. The inertia of the door is adjusted with a spring as follows:

- Secure bolt A with a socket wrench and retain the grip.
- Remove screw B and insert a rod (4.5 mm diameter) in the hole.
- Adjust the spring by tightening bolt A about one-sixth of a turn with the socket wrench, removing the rod at the same time.

Note:

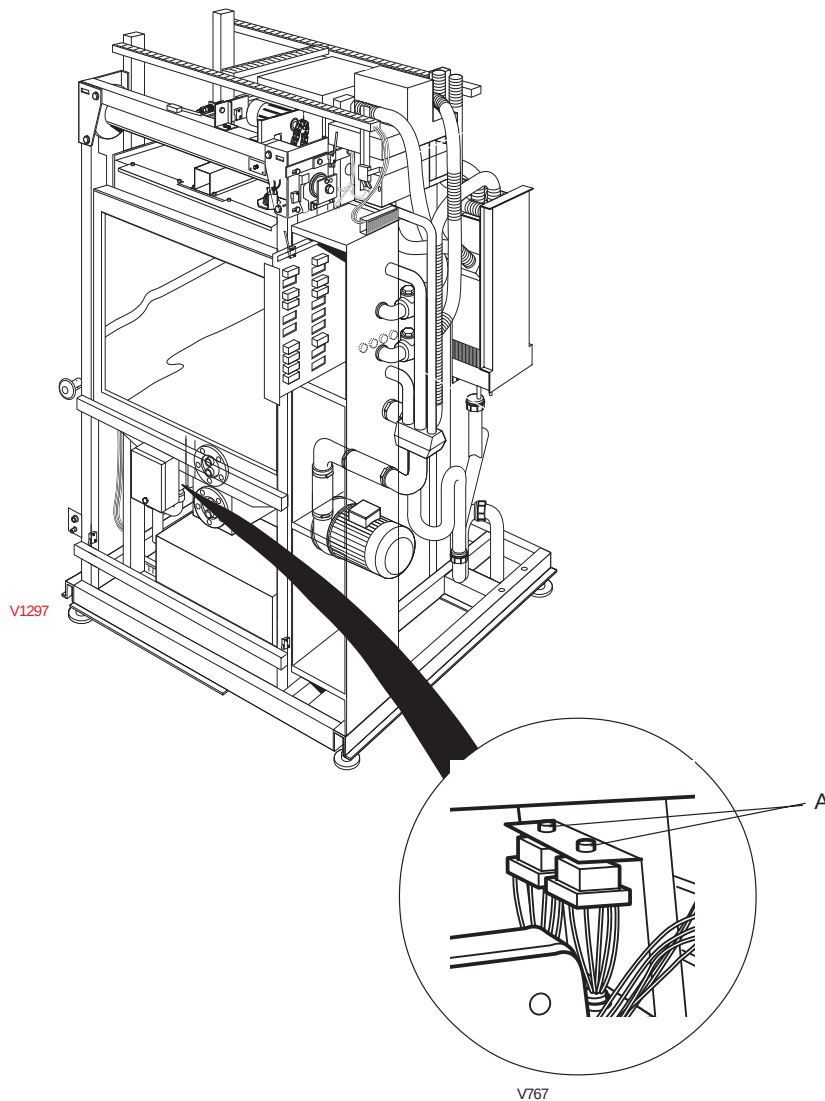
Bolt A or the rod must be held securely or the spring will escape.

- When adjustment is complete, insert and tighten screw B.



Overheat protection

If the element overheats, the overheat protection trips. Reset the overheat protection with button A.



Cleaning the filters in the solenoid valves

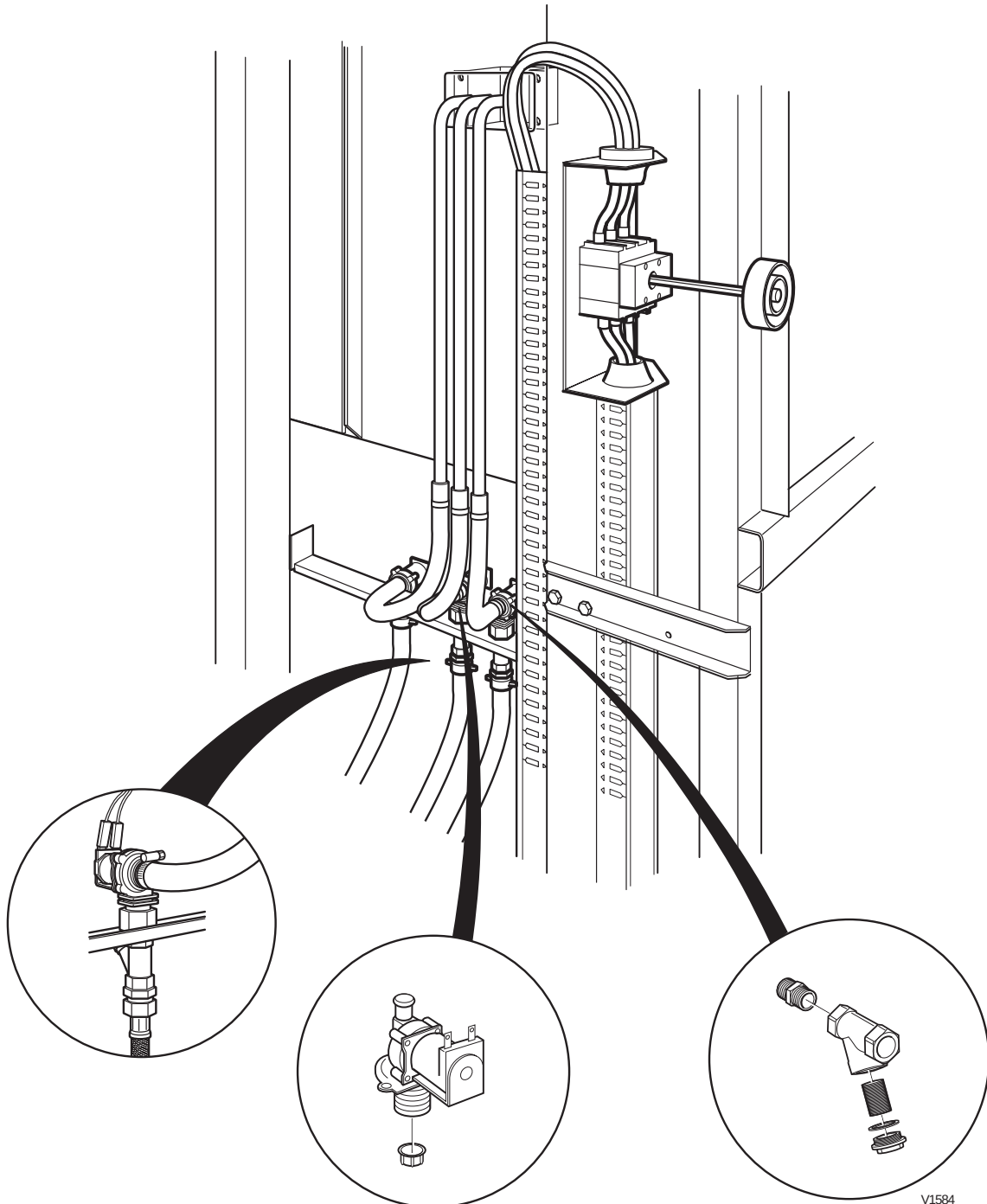


This must only be done by authorised personnel.



The machine is connected to the electricity supply and some components are live.

The filters in the solenoid valves should be regularly checked and cleaned if necessary.



V1584

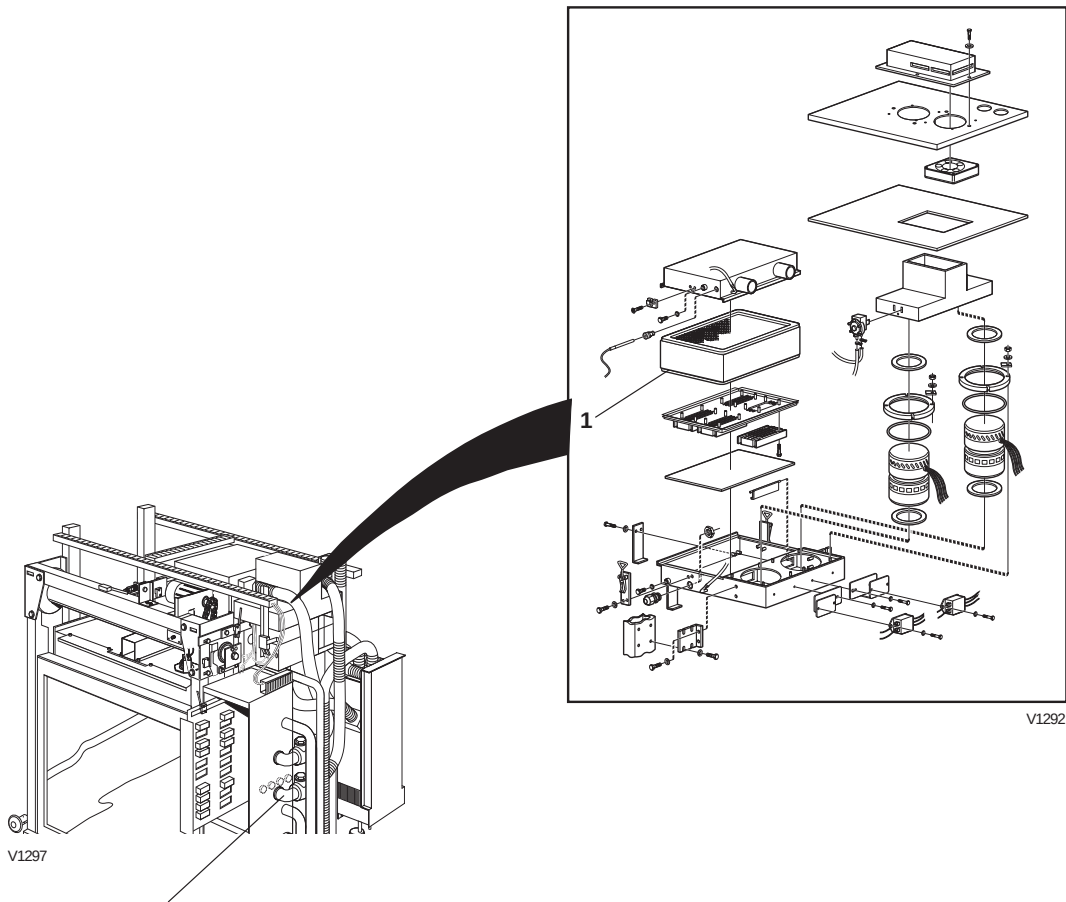
Dryer



This must only be done by authorised personnel.



The machine is connected to the electricity supply and some components are live.



Temperature sensor
located inside the tube

- Check seals and hoses for leaks once a year.
- Replace the sterile filter (1) if necessary or in the event of an alarm.
- Make sure that the filter seals tight when reinstalled, otherwise there is a risk of alarm.

Conductivity measurement (extra equipment)

Conductivity is measured with equipment from Endress+Hauser.



This must only be done by authorised personnel.

Function in washing process

The conductivity meter monitors the quality of the water in the final rinse, independently of the process control.

If the conductivity at the end of the final rinse is higher than the preset value, the machine is drained with the Emptying 2 phase, ie the machine is drained while at the same time being supplied with DW/WFI water and the final rinse is repeated automatically.

If, after three repetitions, the conductivity is still above the preset value, the process is stopped and fault code 11 appears on the display.

Measuring range

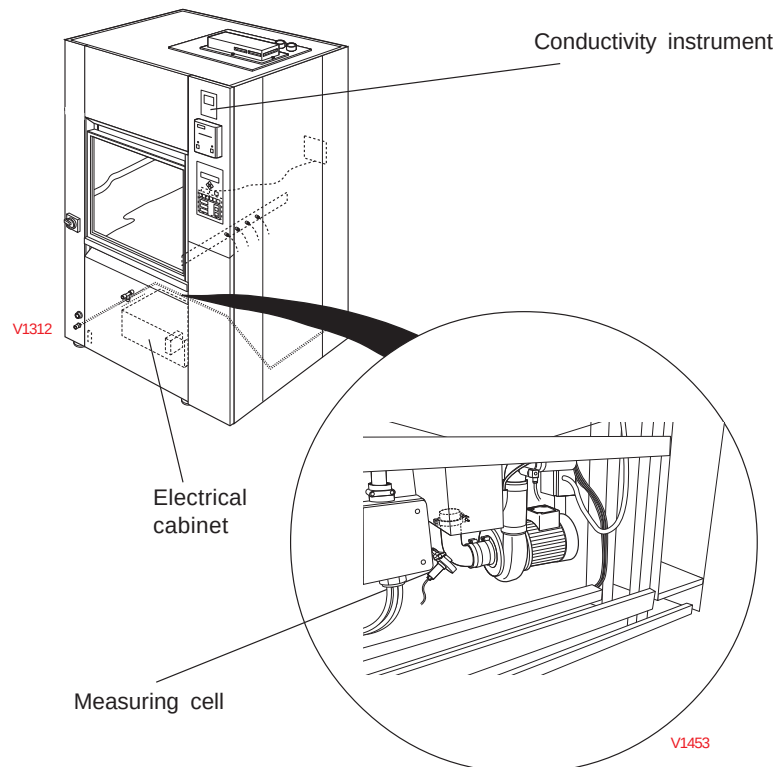
The normal measuring range is 0-20 μ S/cm

Calibration

See under Calibration

Removing a measuring cell

For easy access to the measuring cell, slacken the two screws that keep the electrical cabinet in place. Remove the right-hand screw. Move the electrical cabinet to the left and rotate it forward. Unscrew the measuring cell. The cables are long enough to allow the measuring cell to be immersed in a vessel of calibration liquid.



Setting detergent and rinse-aid quantities



This must only be done by authorised personnel.



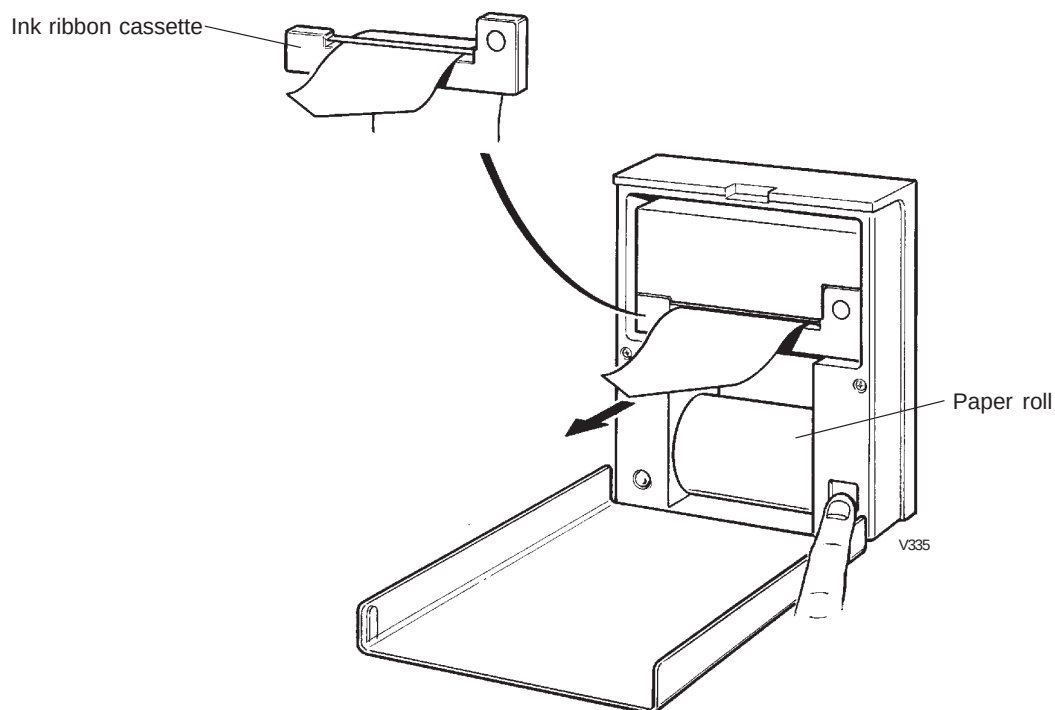
The machine is connected to the electricity supply and some components are live.

- Dispense 100 ml of the relevant substance into a measuring beaker. Check that the suction hose and pump are full before the check.
- Push the suction hose down into the beaker and measure the consumption during an entire cleaning program. Lift up the hose when reading the volume. Adjust if necessary, and repeat the measurement until the amount of detergent conforms to the manufacturer's recommendations.
- If necessary, adjust the dosing time in the service program.

Printer (extra equipment)

Replacing the paper roll

- Open the front.
- Remove any paper residue.
- Remove the ink ribbon by pressing gently on the left-hand side of the ribbon cassette.
- Cut the end of the new roll at the angle shown in the illustration below. This makes it easier to thread the paper into the mechanism.
- Insert the point of the paper into the opening of the print mechanism and press the green button on the printer. The small friction wheel feeds the point of the paper through the opening .
- Replace the ribbon cassette. The printer is now ready to use again.

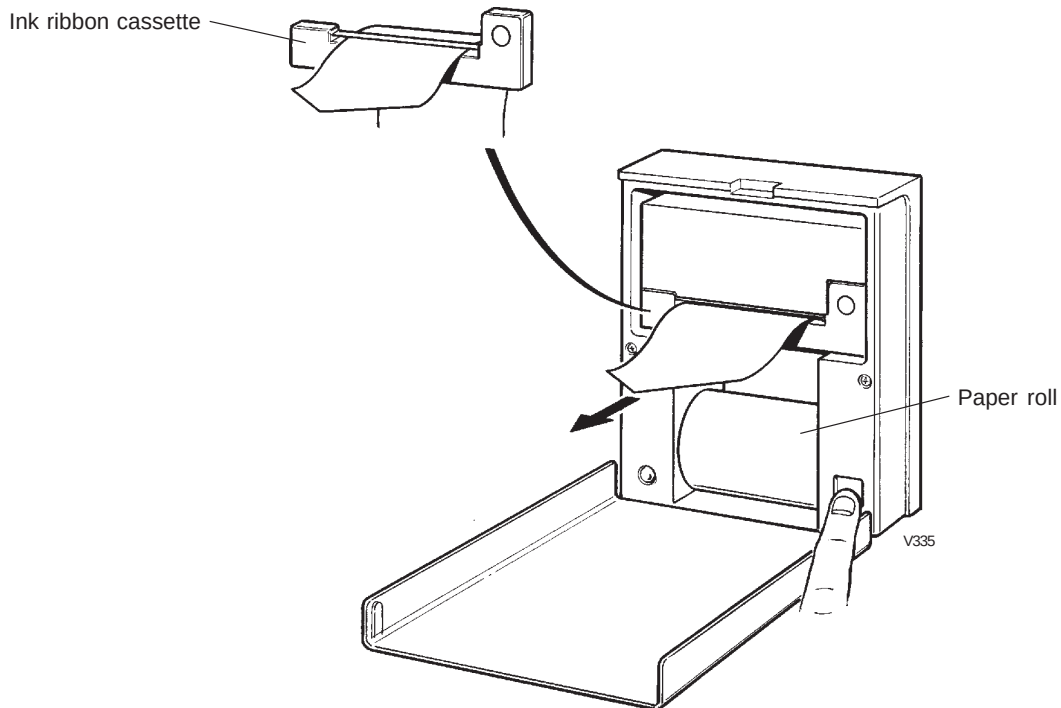


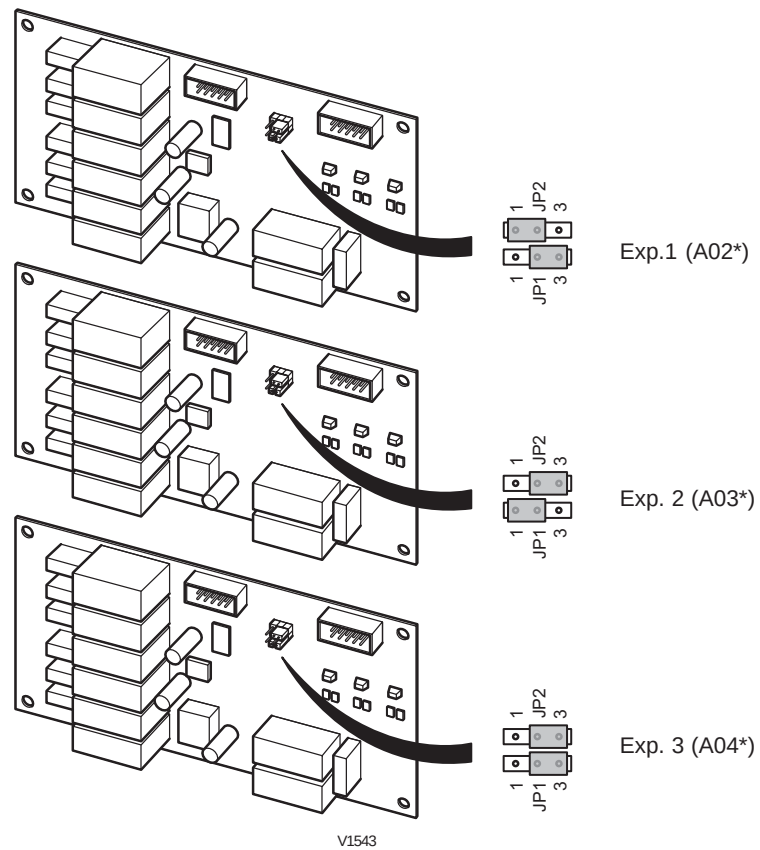
Ribbon cartridge replacement

- Open the front.
- Remove the ink ribbon by pressing gently on the left-hand side of the ribbon cassette.
- Replace the ribbon cassette. The printer is now ready to use again.

Jumpering an expansion card

The reason for jumpering expansion cards is to enable the processor to identify which card is which. Jumpering may be necessary when changing a card or when installing additional equipment. Jumpering is done as shown in the illustration.





*References on electrical diagram

Replacing a hose to a hose pump

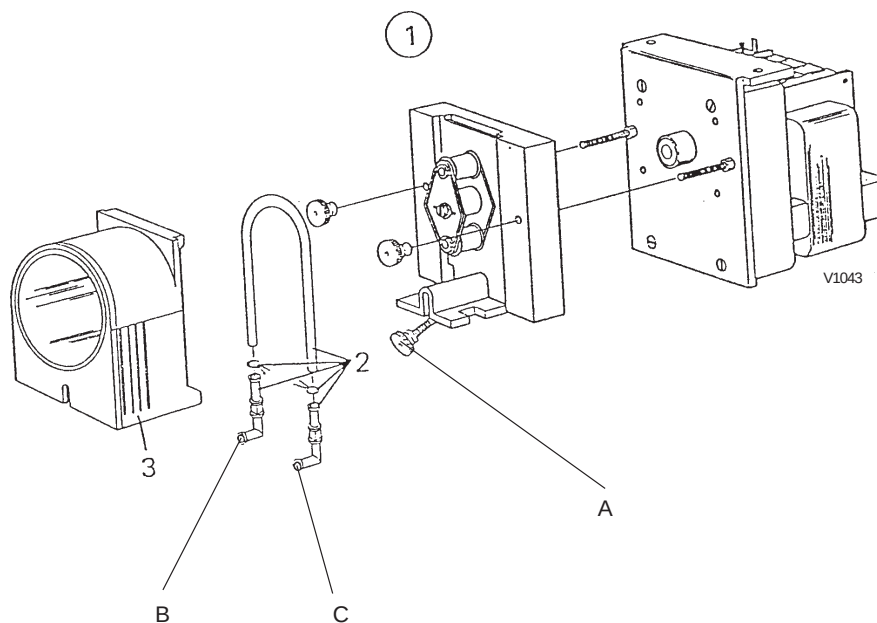


This may only be done by authorised personnel.



Before starting work, make sure that the machine is isolated from the electric power supply.

- Remove the cover (3) by unscrewing screw A.
- Disconnect the hoses at connections B and C.
- Take out the entire unit including hose (2) (a complete spare parts kit).
- Install the new unit.
- Refit the cover.



Booster tank



The booster tank contains hot water. This may cause scalding injuries if proper procedures are not followed.



It is essential to drain the booster tank when servicing the booster tank and its valves. This is in order to prevent scalding, since the temperature of the water in the booster tank is about 85 degrees Celsius (about 180 degrees F)

Booster tank with drain tap

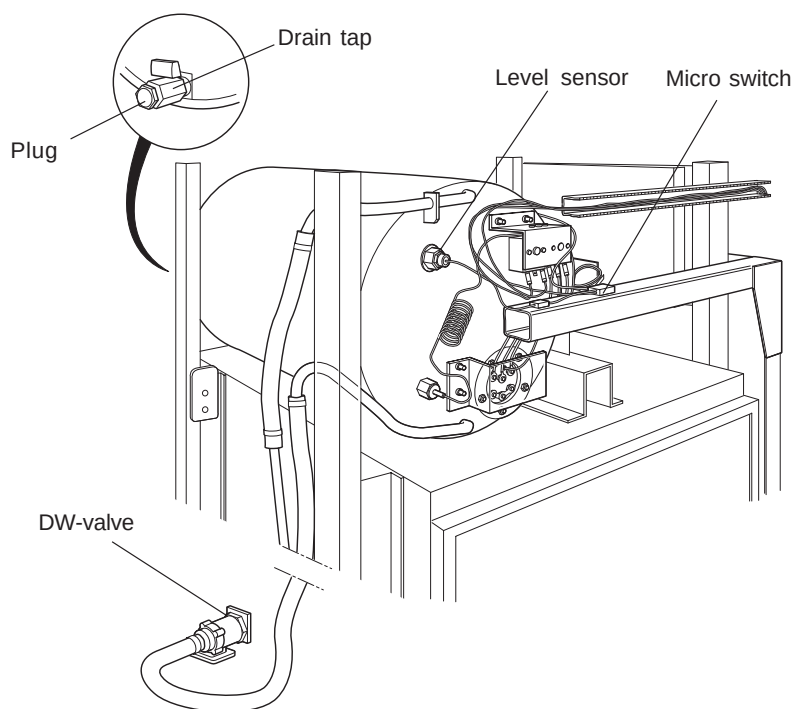
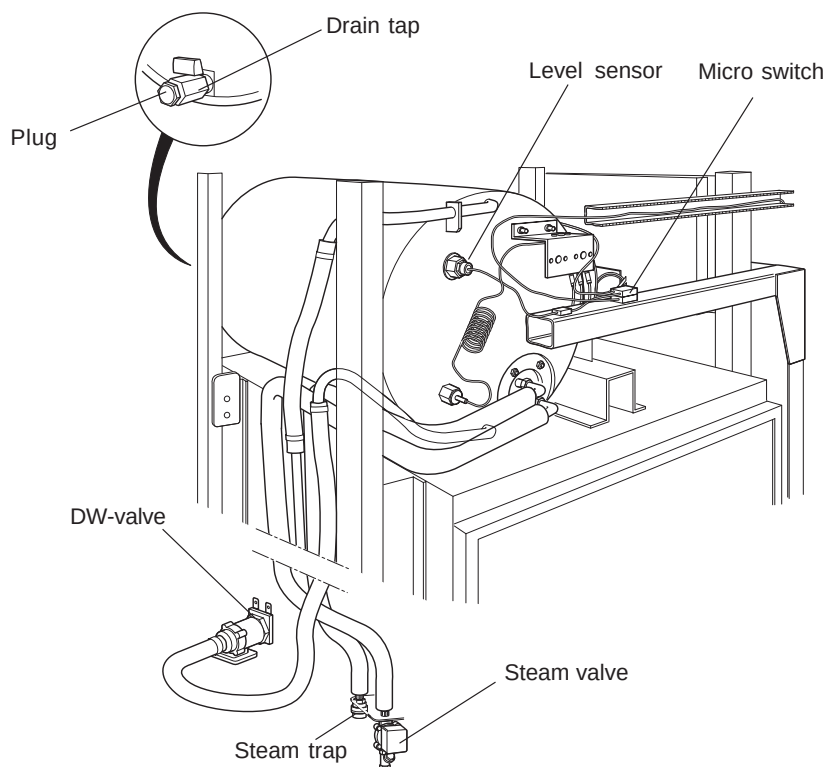
The tank is drained via a drain tap on the back of the tank. Make sure that the tap is not open before unscrewing the plug. If a nipple with G ¼ male thread is used, the associated hose can be fitted to the drain tap. The tank can now be drained.

After draining, check that the drain tap is working properly. Seal the plug with PTFE tape and refit it.

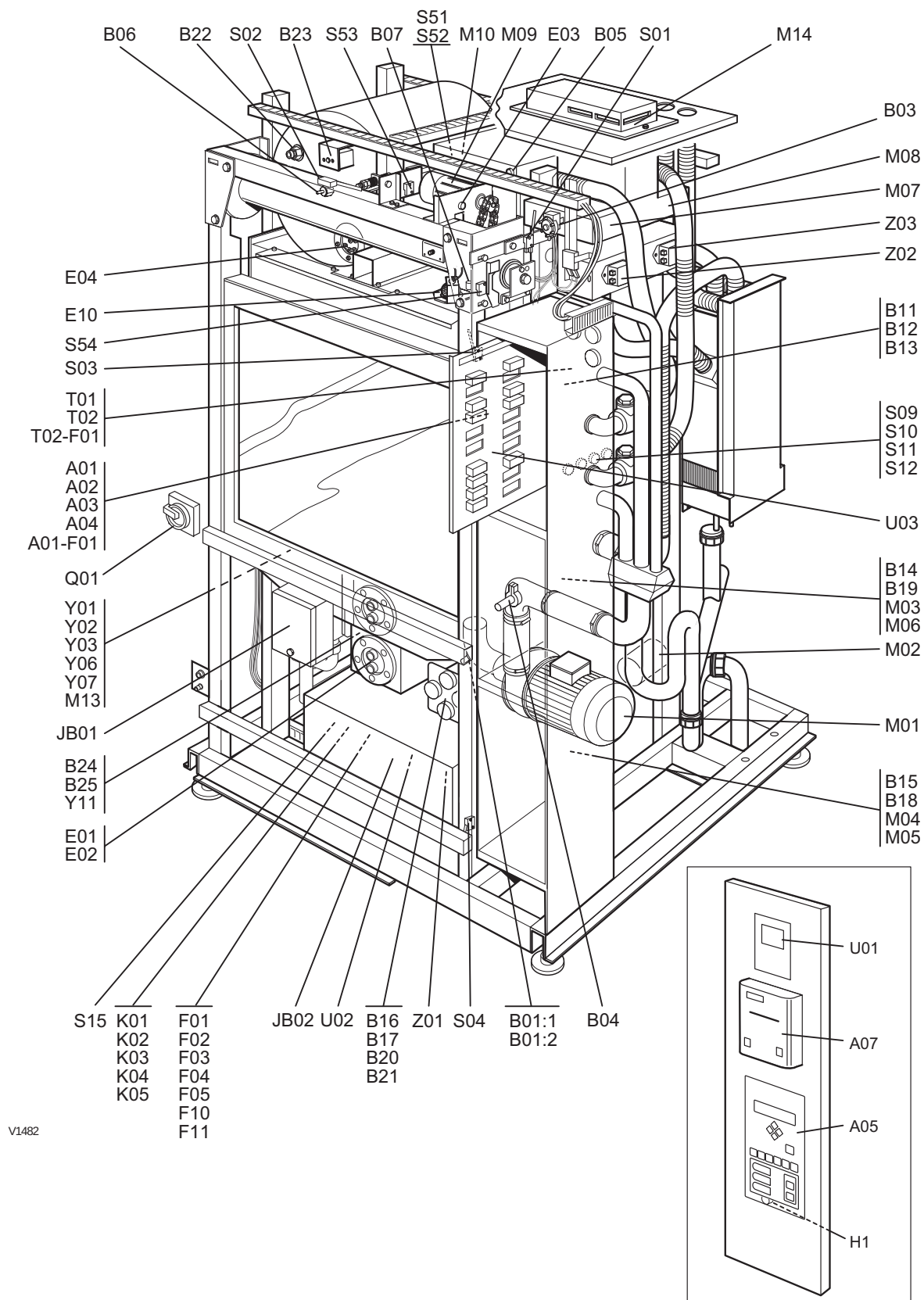
The microswitch must be checked as well, since it activates the booster tank. The booster tank heating must **never** be on when the door(s) is/are down for loading/unloading goods.

When servicing is complete, check the entire system for water leaks.

The booster tank must be filled before a process is started. To do this, open the DW valve via the control system. This is important, in order to avoid unwanted fault codes when starting the machine.

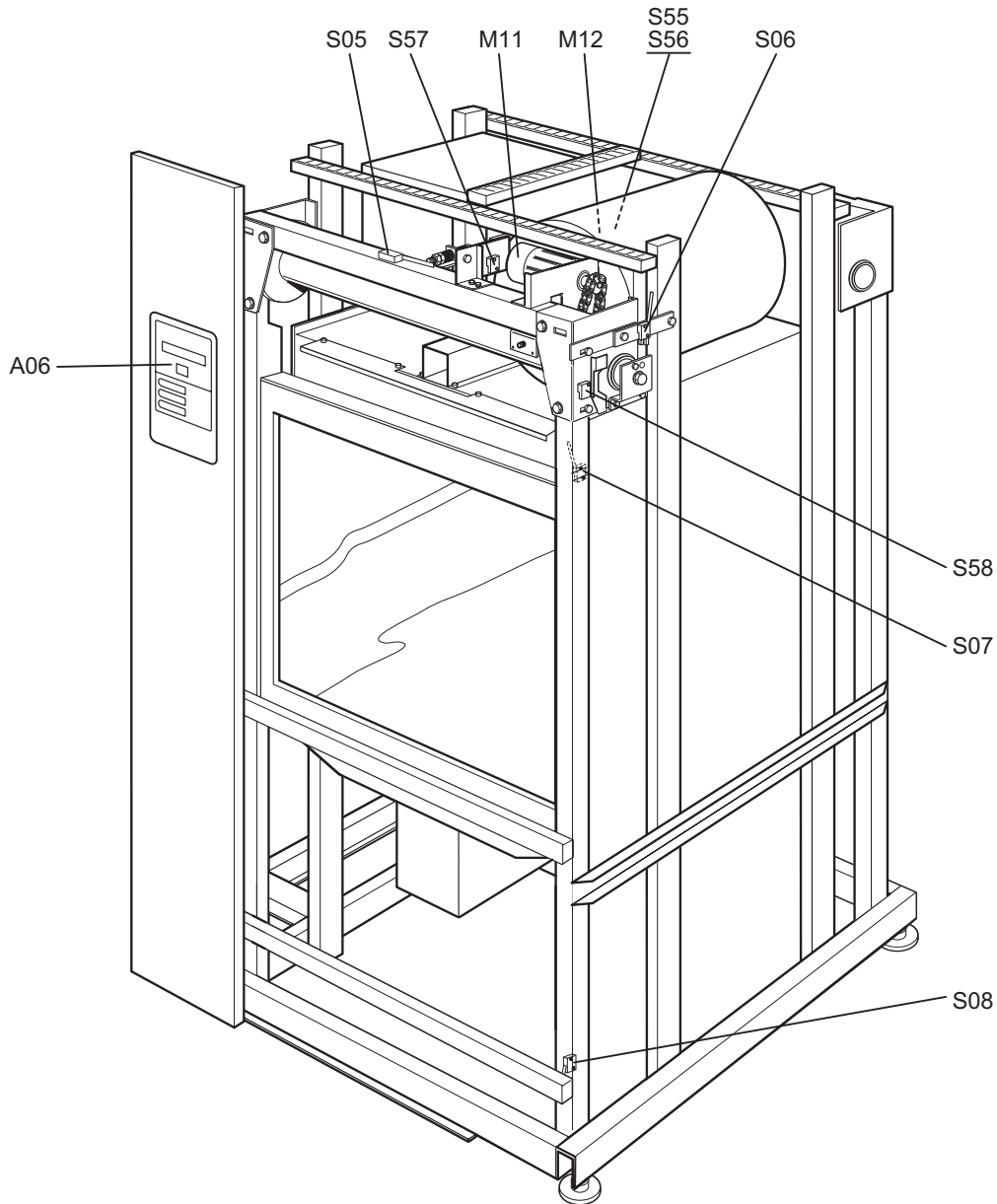


List of components



V1482

A01	Control system PACS300	K03	Contactor, tank heating
A01-F01	Glass fuse for main board power supply T 315 mA/250 V	K04	Contactor, dryer heating (1)
A02	Expansion card 1	K05	Contactor, booster tank heating *
A03	Expansion card 2	M01	Motor, circulation pump
A04	Expansion card 3	M02	Motor, waste pump
A05	Panel, dirty side	M03	Motor, dosing pump 1
A07	Printer *	M04	Motor, dosing pump 2
B01:1	Conductivity sensor *	M05	Motor, dosing pump 3 *
B01:2	Conductivity sensor *	M06	Motor, dosing pump 4 *
B03	Diff. sensor, dryer filter (1)	M07	Motor, drying fan 1
B04	Pressure sensor, circulation pump *	M08	Motor, drying fan
B05	Temperature sensor, dryer	M09	Motor, door, dirty side *
B06	Temperature sensors, booster tank *	M10	Motor, door locking, dirty side
B07	Temperature sensor, chamber / independent (two in one sensor)	M13	Motor, pressure boost pump *
B11	Level sensor, tank, chamber (lower)	M14	Motor, ventilation fan
B12	Leakage sensor, dryer	Q01	Main switch
B13	Leakage sensor, dryer	S01	Limit switch, door unlocked/out, dirty side
B14	Level sensor, empty container alarm 1	S02	Limit switch, door locked/in, dirty side
B15	Level sensor, empty container alarm 2	S03	Limit switch, top position/closed, dirty side
B16	Flow sensor, dosing ind 1 *	S04	Limit switch, bottom position/open, dirty side *
B17	Flow sensor, dosing ind 2 *	S09	Trolley indication, program selection *
B18	Level sensor, empty container alarm 3 *	S10	Trolley indication, program selection *
B19	Level sensor, empty container alarm 4 *	S11	Trolley indication, program selection *
B20	Flow sensor, dosing ind 3 *	S12	Trolley indication, correct position *
B21	Flow sensor, dosing ind 4 *	S15	OK Steam / Elec.
B22	Level sensor, booster tank *	S51	Limit switch, door locking, dirty side
B23	Overtemperature protection, booster tank heating	S52	Limit switch, door locking, dirty side
B24	Overtemperature protection, tank heating	S53	Limit switch, door, dirty side *
B25	Overtemperature protection, tank heating	S54	Limit switch, door, dirty side *
E01	Heating element, tank	T01	Transformer
E02	Heating element, tank	T02	Transformer, lighting
E03	Heating element dryer	T02-F01	Glass fuse on transformer for lighting
E04	Heating element, booster tank	U01	Conductivity meter *
E10	Lamp in chamber	U02	DC power supply unit
F01	MCB, circulation pump	U03	DC power supply unit, printer, 5 V *
F02	MCB, tank heating	Y01	MV cold water
F03	MCB, tank heating	Y02	MV hot water
F04	MCB, dryer heating (1)	Y03	MV DV/WFI water *
F05	MCB, booster tank heating	Y06	MV waste cooling *
F10	MCB for T01 (dryer fans)	Y07	MV extra DV *
F11	MCB, control	Y11	MV tank heating, steam
H1	Buzzer *	Z01	Filter, control
JB01	Junction box	Z02	Filter, dryer fans
JB02	Power electrical box	Z03	Filter, dryer fans
K01	Contactor, circulation pump		
K02	Contactor, tank heating		



V1483

* Optional extra equipment

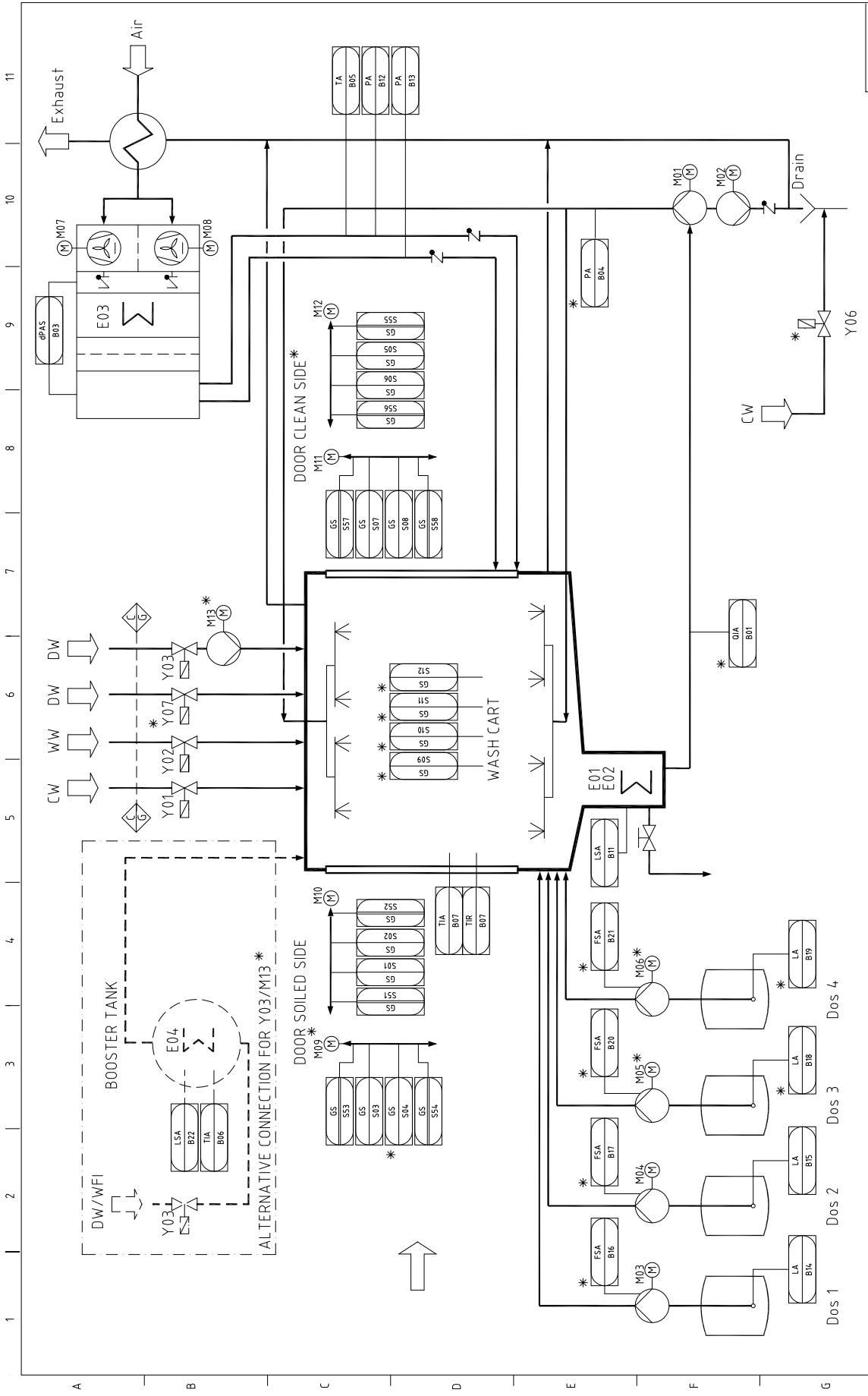
- A06 Panel, clean side *
- M11 Motor, door, clean side *
- M12 Motor, door locking, clean side *
- S05 Limit switch, door locked/in, clean side *
- S06 Limit switch, door unlocked/out, clean side *
- S07 Limit switch, top position/closed, clean side *
- S08 Limit switch, bottom position/open, clean side *
- S55 Limit switch, door locking, clean side *
- S56 Limit switch, door locking, clean side *
- S57 Limit switch, door, clean side *
- S58 Limit switch, door, clean side *

* Optional extra equipment

ELECTRICAL DOCUMENTATION											PACS 300										
PAGE	DRAWING NO	DOCUMENT CLASS	DOCUMENT CONTENTS	EQUIPMENT	DATE	REV NO	DATE														
01	D-5011511	DOCUMENT LIST	DOCUMENT CONTENTS	S-8666	030610	C	040130														
02	D-5011512	DOCUMENT LIST	DOCUMENT CONTENTS	S-8666	030610	B	040130														
03	D-5011516	P&I DIAGRAM	ELECTRICAL HEATING	S-8666	030610																
04	D-5011517	P&I DIAGRAM	STEAM HEATING	S-8666	030610																
05	D-5011518	P&I DIAGRAM	STEAM HEATING + ELECTRICAL AS BACKUP	S-8666	030610																
06	D-5011515	LAYOUT	ELBOX	S-8666	030610																
07	D-5011479	CIRCUIT DIAGRAM	MAIN CIRCUITS 230/400 V, 3N+PE, ELECTRICAL HEATING	S-8666	030610	B	031024														
08	D-5011480	CIRCUIT DIAGRAM	MAIN CIRCUITS 240 V, 3+PE, ELECTRICAL HEATING	S-8666	030610	B	031024														
09	D-5011481	CIRCUIT DIAGRAM	MAIN CIRCUITS 230 V, 3+PE, ELECTRICAL HEATING	S-8666	030610	A	030916														
10	D-5011482	CIRCUIT DIAGRAM	MAIN CIRCUITS 208 V, 3+PE, ELECTRICAL HEATING	S-8666	030610	A	030916														
11	D-5011483	CIRCUIT DIAGRAM	MAIN CIRCUITS 200 V, 3+PE, ELECTRICAL HEATING	S-8666	030610	B	031024														
12	D-5011484	CIRCUIT DIAGRAM	MAIN CIRCUITS 230/400 V, 3N+PE, STEAM HEATING	S-8666	030610	B	031025														
13	D-5011485	CIRCUIT DIAGRAM	MAIN CIRCUITS 240 V, 3+PE, STEAM HEATING	S-8666	030610	B	031025														
14	D-5011486	CIRCUIT DIAGRAM	MAIN CIRCUITS 230 V, 3+PE, STEAM HEATING	S-8666	030610	B	031025														
15	D-5011487	CIRCUIT DIAGRAM	MAIN CIRCUITS 208 V, 3+PE, STEAM HEATING	S-8666	030610	B	031025														
16	D-5011488	CIRCUIT DIAGRAM	MAIN CIRCUITS 200 V, 3+PE, STEAM HEATING	S-8666	030610	B	031025														
17	D-5011489	CIRCUIT DIAGRAM	MAIN CIRCUITS 230/400 V, 3N+PE, STEAM HEATING + ELECTRICAL AS BACKUP	S-8666	030610	B	031025														
18	D-5011490	CIRCUIT DIAGRAM	MAIN CIRCUITS 240 V, 3+PE, STEAM HEATING + ELECTRICAL AS BACKUP	S-8666	030610	B	031025														
19	D-5011491	CIRCUIT DIAGRAM	MAIN CIRCUITS 230 V, 3+PE, STEAM HEATING + ELECTRICAL AS BACKUP	S-8666	030610	B	031025														
20	D-5011492	CIRCUIT DIAGRAM	MAIN CIRCUITS 208 V, 3+PE, STEAM HEATING + ELECTRICAL AS BACKUP	S-8666	030610	B	031025														
21	D-5011493	CIRCUIT DIAGRAM	MAIN CIRCUITS 200 V, 3+PE, STEAM HEATING + ELECTRICAL AS BACKUP	S-8666	030610	B	031025														
22	D-5011494	CIRCUIT DIAGRAM	CONTROL VOLTAGE 230/400 V, 3N+PE	S-8666	030610	B	040130														
23	D-5011495	CIRCUIT DIAGRAM	CONTROL VOLTAGE 240 V, 3+PE	S-8666	030610	B	040130														
24	D-5011496	CIRCUIT DIAGRAM	CONTROL VOLTAGE 230 V, 3+PE	S-8666	030610	B	040130														
25	D-5011497	CIRCUIT DIAGRAM	CONTROL VOLTAGE 208 V, 3+PE	S-8666	030610	B	040130														
26	D-5011498	CIRCUIT DIAGRAM	CONTROL VOLTAGE 200 V, 3+PE	S-8666	030610	B	040130														
							1														
C	ÄM04-004.0	040130	PA					Replaced by													
B	ÄM03-0355	031027	PA					File No.	2002-06-06												
A	ÄM03-0303	030917	PA					Dwg No	5011511												
Nr	Ändring och/eller medd.-nr	Datum	Inf.					Doc No	C												
			GETINGE			DOCUMENT LIST			Replaced by												
			Lungavdelningen II			ELECTRICAL DOCUMENTATION			Date												
			PO Box 1505 SE 351 15 Växjö Sweden			S-8666 HOSPITAL			2002-06-06												
									Rev.												

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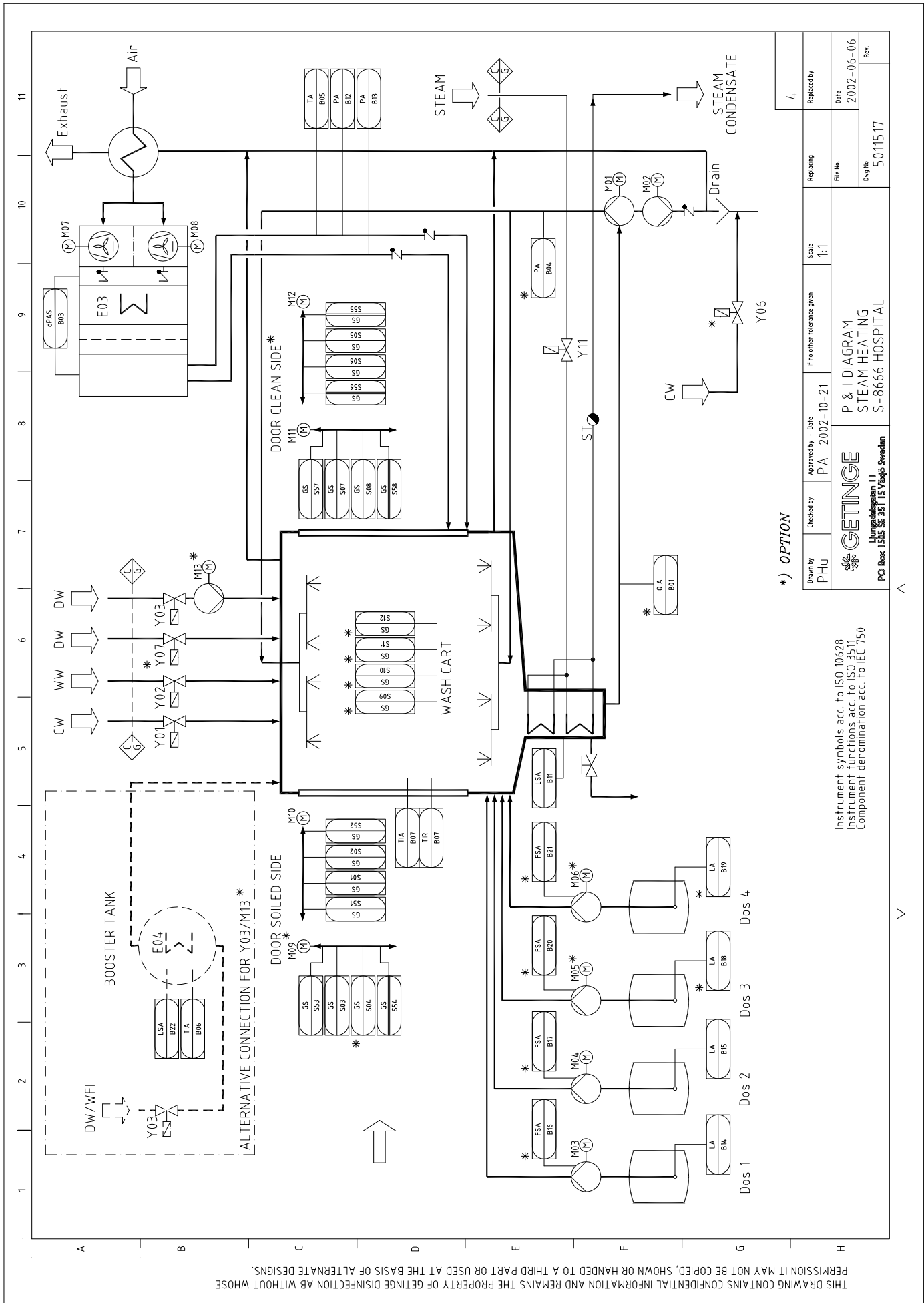
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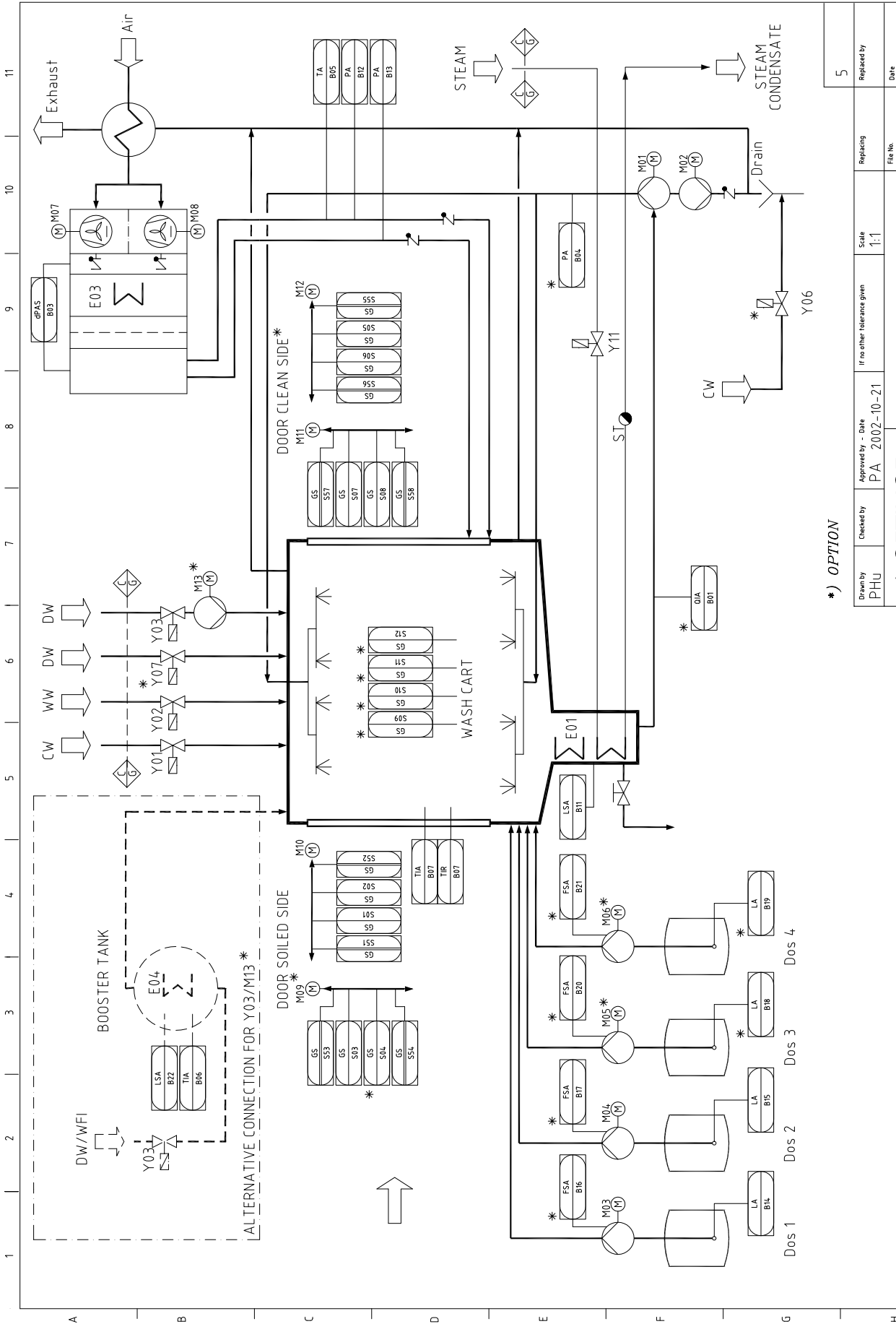


*) OPTION

Instrument symbols acc. to ISO 10628
Instrument functions acc. to ISO 3511
Component denomination acc. to IEC 750

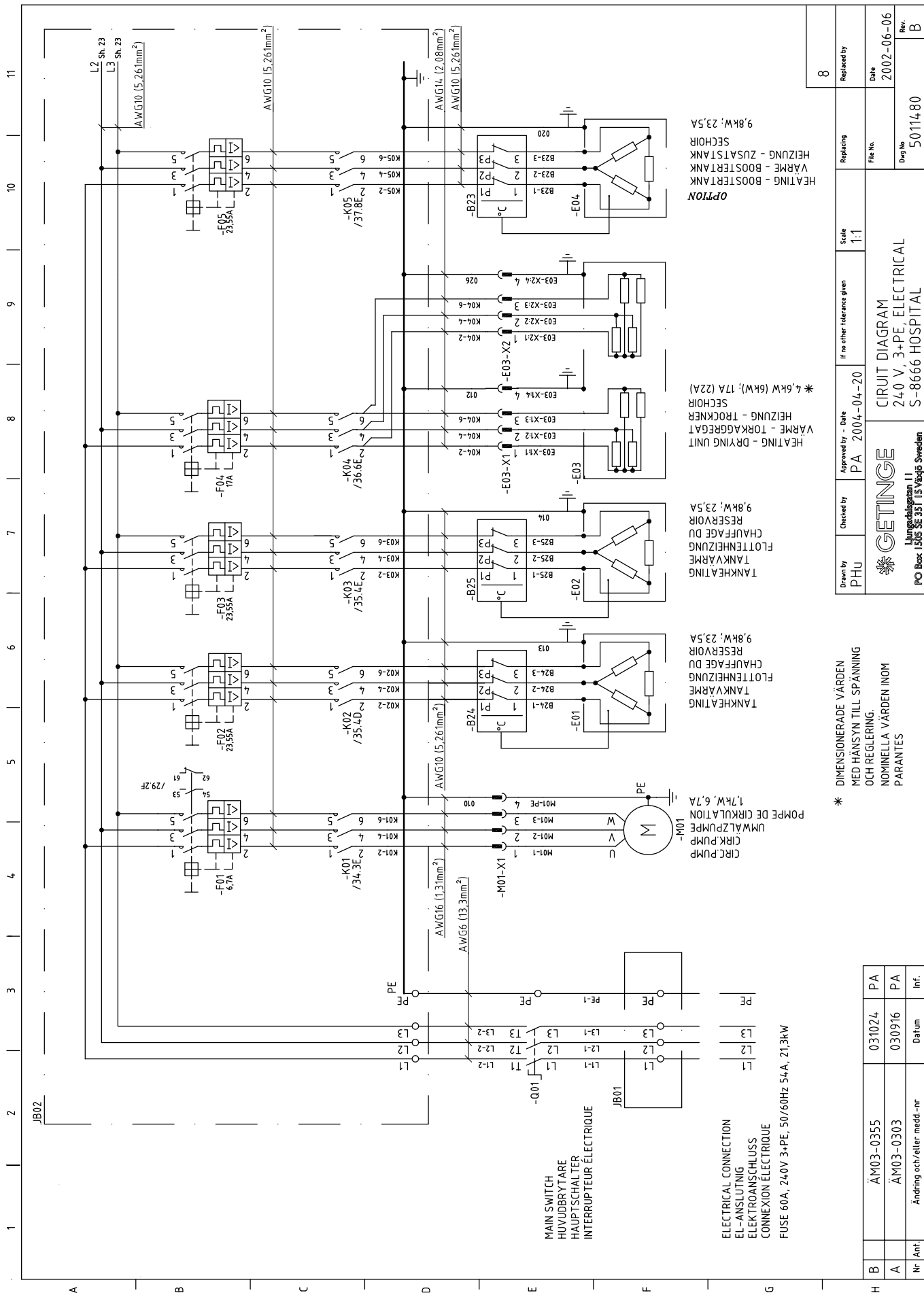
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GETINGE Ljungskilavägen 11 PO Box 1505 SE 351 15 Västra Sweden				File No. 2002-06-06	Date Rev.
P & I DIAGRAM ELECTRICAL HEATING S-8666 HOSPITAL				5011516	2002-06-06

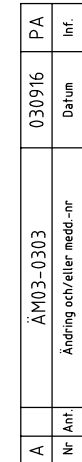


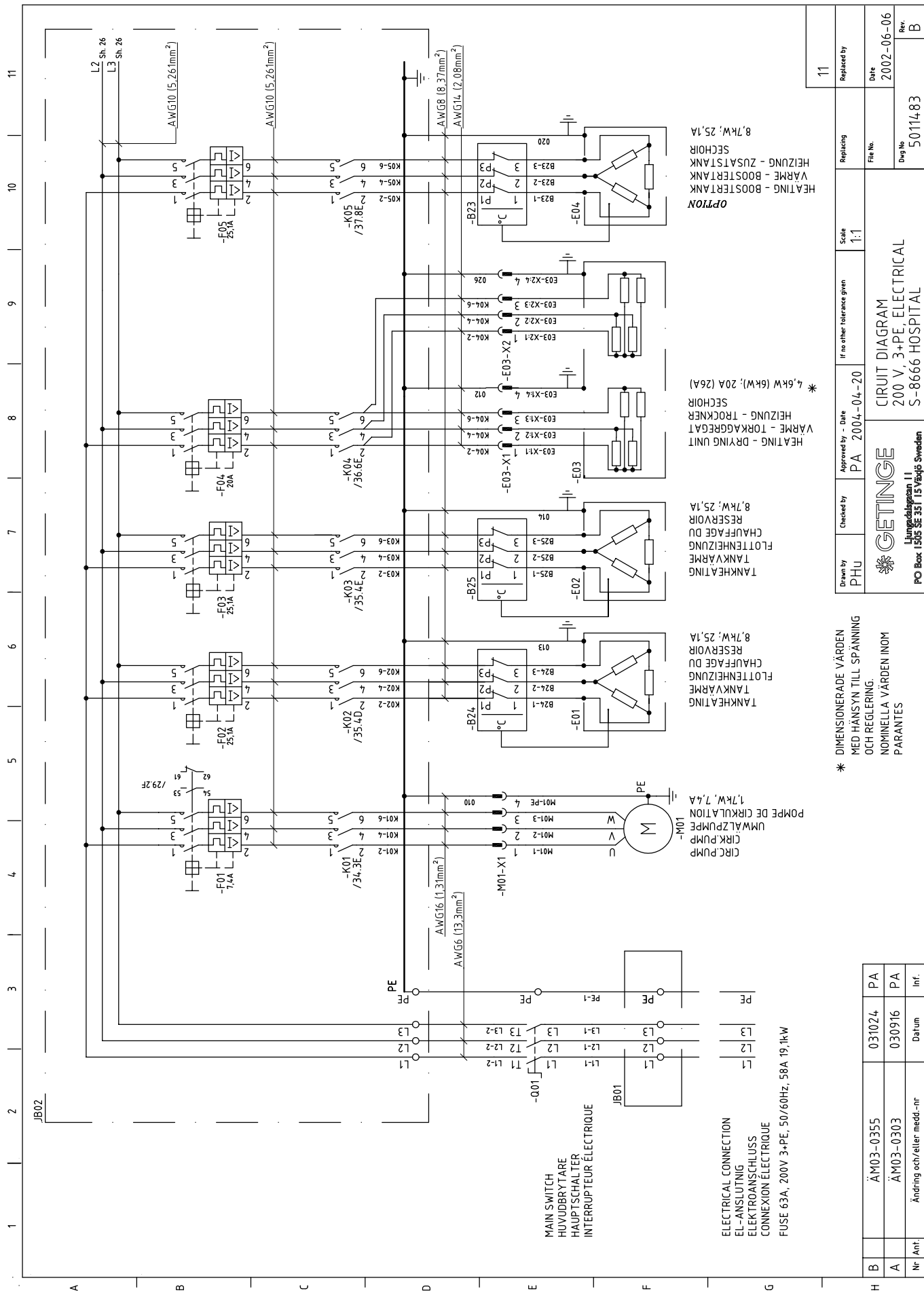


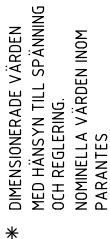
*) OPTION

Drawn by	Checked by	Approved by - Date	If no other tolerance given	Scale	Replacing	Replaced by
PHU	PA	2002-10-21		1:1		
GETINGE Ljungskällan 11 PO Box 1505 SE 351 15 Värgö Sweden						5011518
P & I DIAGRAM STEAM HEATING +EL (BACKUP) S-8666 HOSPITAL						
Instrument symbols acc. to ISO 10628 Instrument functions acc. to ISO 3511 Component denomination acc. to IEC 750						
Date 2002-06-06						Rev.



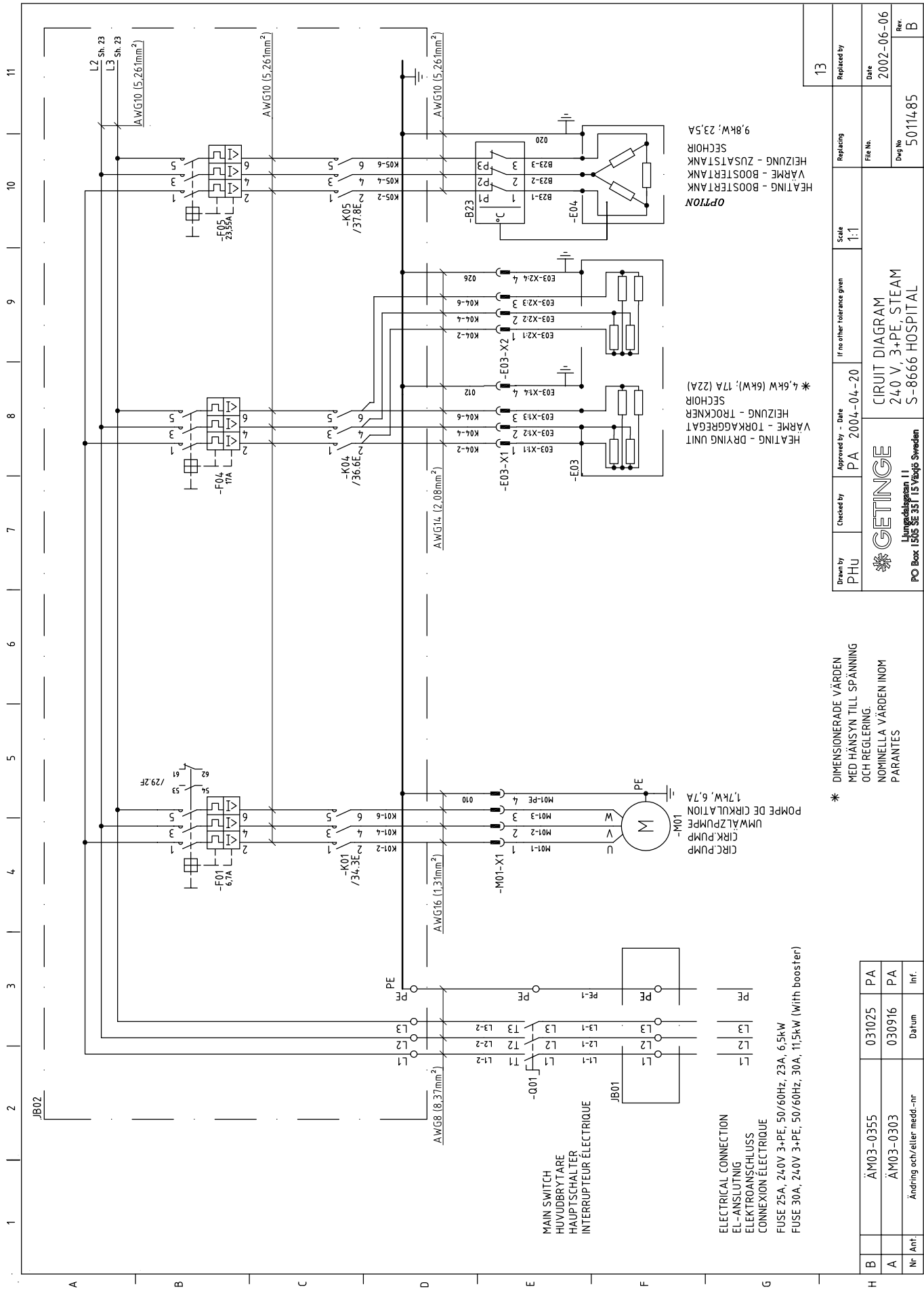


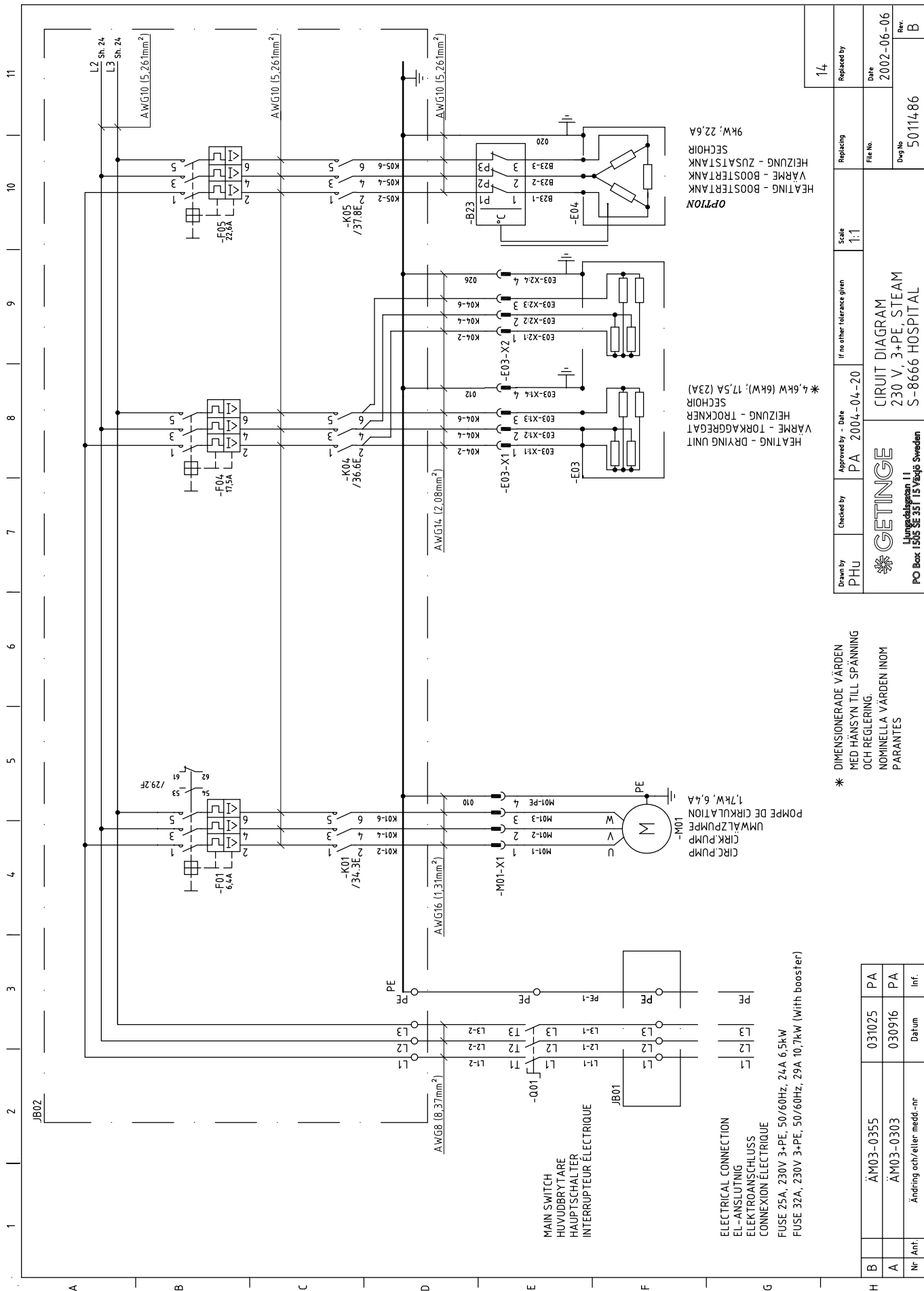


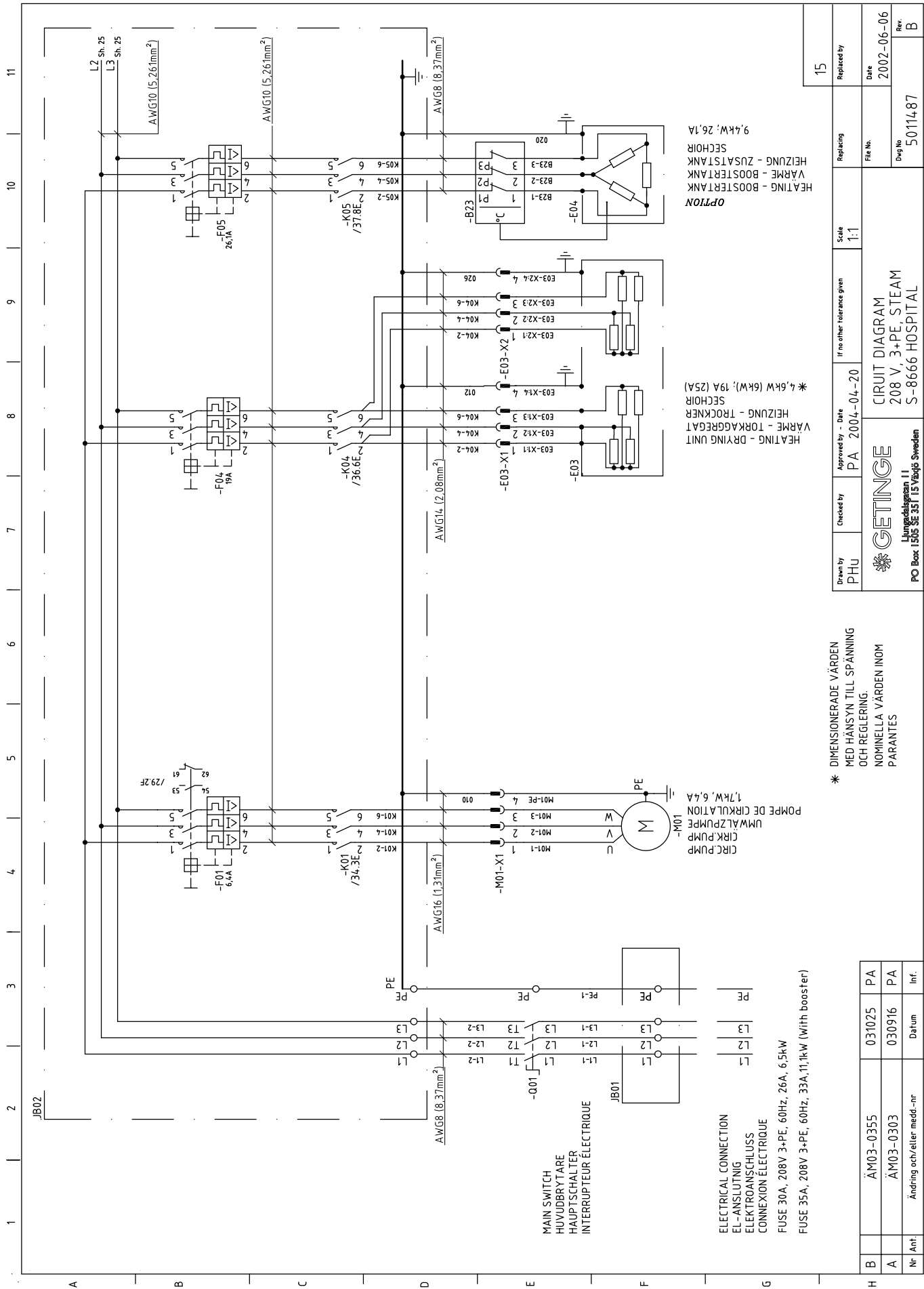


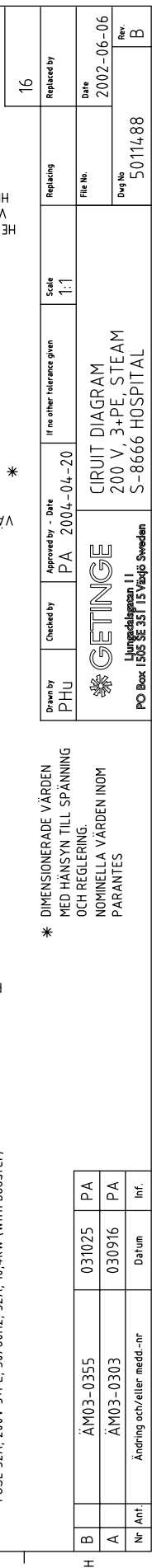
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Nr	Ant.	Ändring och/eller medd.-nr	Datum	Inf.

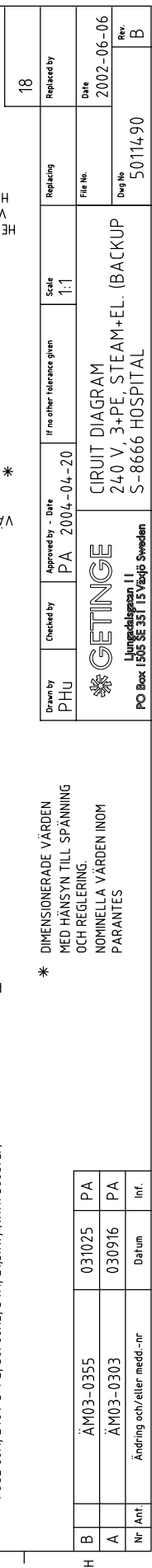
Drawn by PHU	Checked by	Approved by - Date PA 2004-04-20	If no other tolerance given Scale 1:1	 GETINCE HUNGARISK F&E AB PO Box 1505 SE 357 15 Växjö Sweden	CIRCUIT DIAGRAM 230/400 V, 3N+PE, STEAM	File No.	Replaced by
					Dwg No. 5011484	Date 2002-06-06	
					Rev. B		

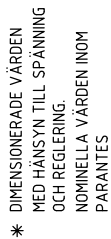










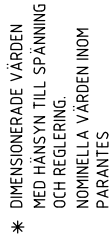


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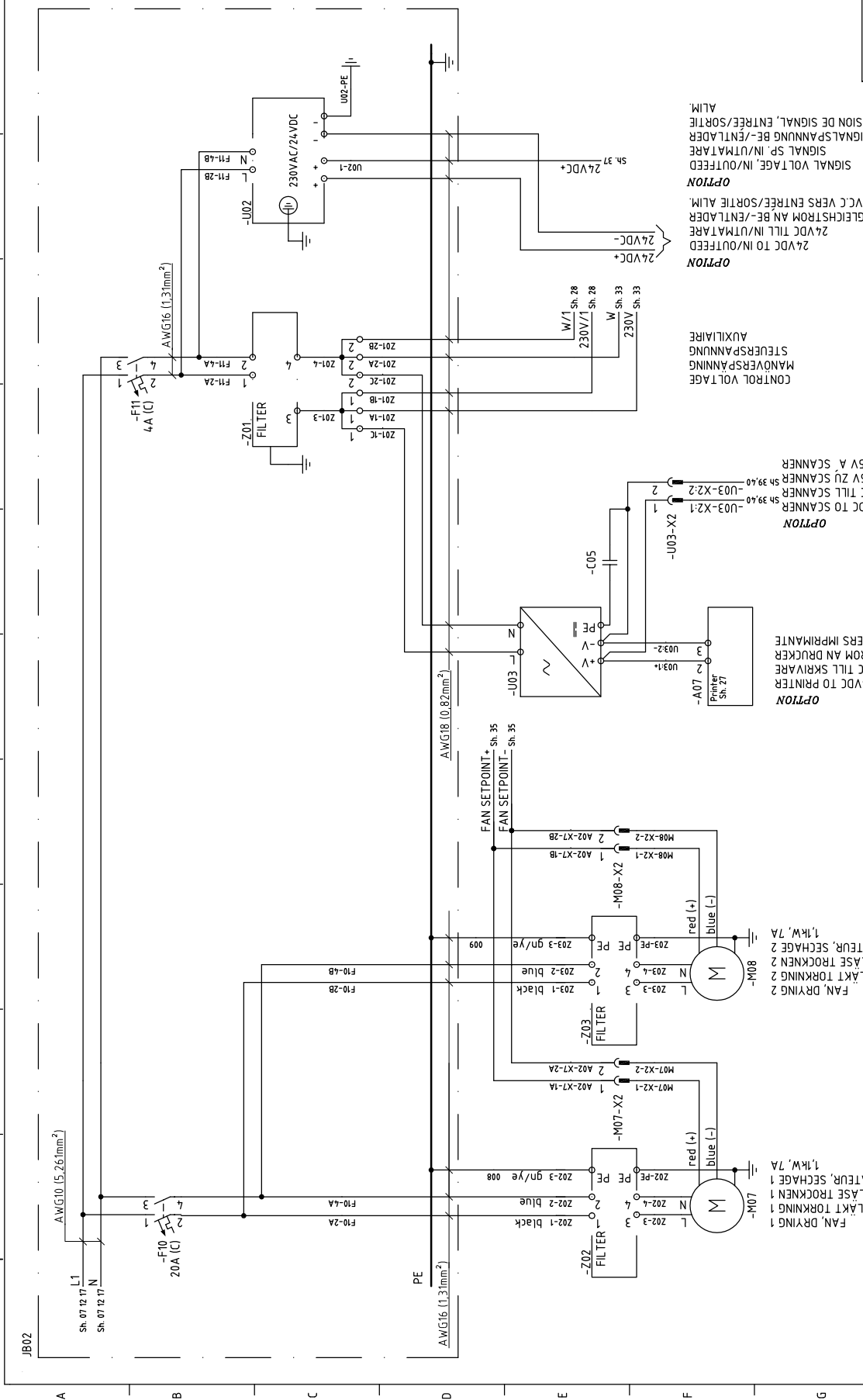
CIRCUIT DIAGRAM
230 V, 3+PE, STEAM+EL. (BACKUP
S-8666 HOSPITAL

***GETINGE**
Ljungadalsgatan 11
Box 1505 SE 351 15 Värdö SWE

Drawn by PHU	Checked by PA	Approved by - Date 2004-04-20	If no other tolerance given Scale 1:1	 GETINGE Långgödsåsen 11 PO Box 1505 SE 351 15 Växjö Sweden	CIRCUIT DIAGRAM 230 V, 3+PE, STEAM+EL. (BACKUP S-8666 HOSPITAL	File No.	Dwg No 5011491	Replaced by B



Drawn by PHU	Checked by PA	Approved by - Date PA 2004-04-20	If no other tolerance given Scale 1:1	Replacing	Replaced by
 Helsingfors II PO Box 1505 SE 357 15 Växjö Sweden			CIRUIT DIAGRAM 208 V, 3+PE, STEAM+EL. (BACKUP S-8666 HOSPITAL	File No.	Date
				Dwg No. 50114.92	2002-06-06 Rev. B



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B	ÄM04-0040	040130	PA
A	ÄM03-0355	031027	PA
Nr	Ändring och/eller medd.-nr	Datum	Inf.

Drawn by PHU	Checked by P.A.	Approved by P.A.	Date 2004-04-20	If no other tolerance given	Scale 1:1	Replacing Z. Z.	Replaced by Z. Z.
				CIRUIT DIAGRAM			
				CONTROL VOLTAGE, 400V, 3N+PN			
				S-8666 HOSPITAL			
				Drawn No. 50114.94 Rev. B			

MANÜVRIERUNG
STEUERSPEISUNG
AUXILIÄRE

OPTION

SVDC TO PRINTER
SVDC TILL SKRIVARE
C.C VERS IMPRIMANTE
CHSTRAM AN DRUCKER

Pin 27
Printer

A07
3
2

OPTION

SVDC TO SCANNER
SVDC TILL SKANNER
SV A SCANNER
SV ZU SCANNER

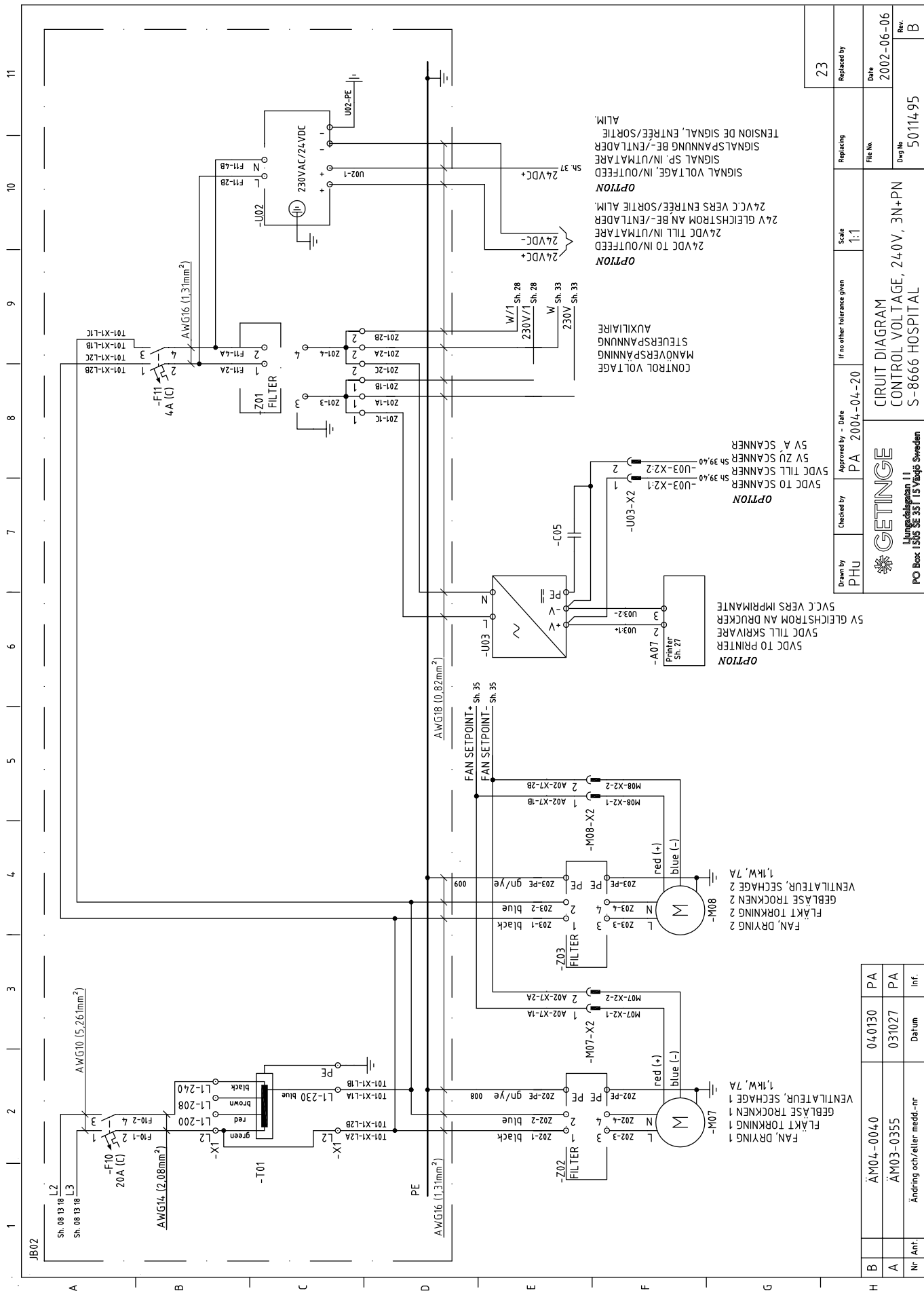
U03-XZ-1
U03-XZ-2
\$9.60

VENTILATEUR, SECHAGE 2
1,1kW, 7A
FAN, DRYING 2
FLÄKT TÖRKNING 2
GEBLÄSE TROCKNEN 2

red (+)
blue (-)
N
L

M07

VENTILATEUR, SECHAGE 1
1,1kW, 7A
FAN, DRYING 1
FLÄKT TÖRKNING 1
GEBLÄSE TROCKNEN 1



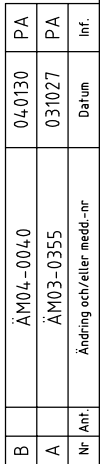
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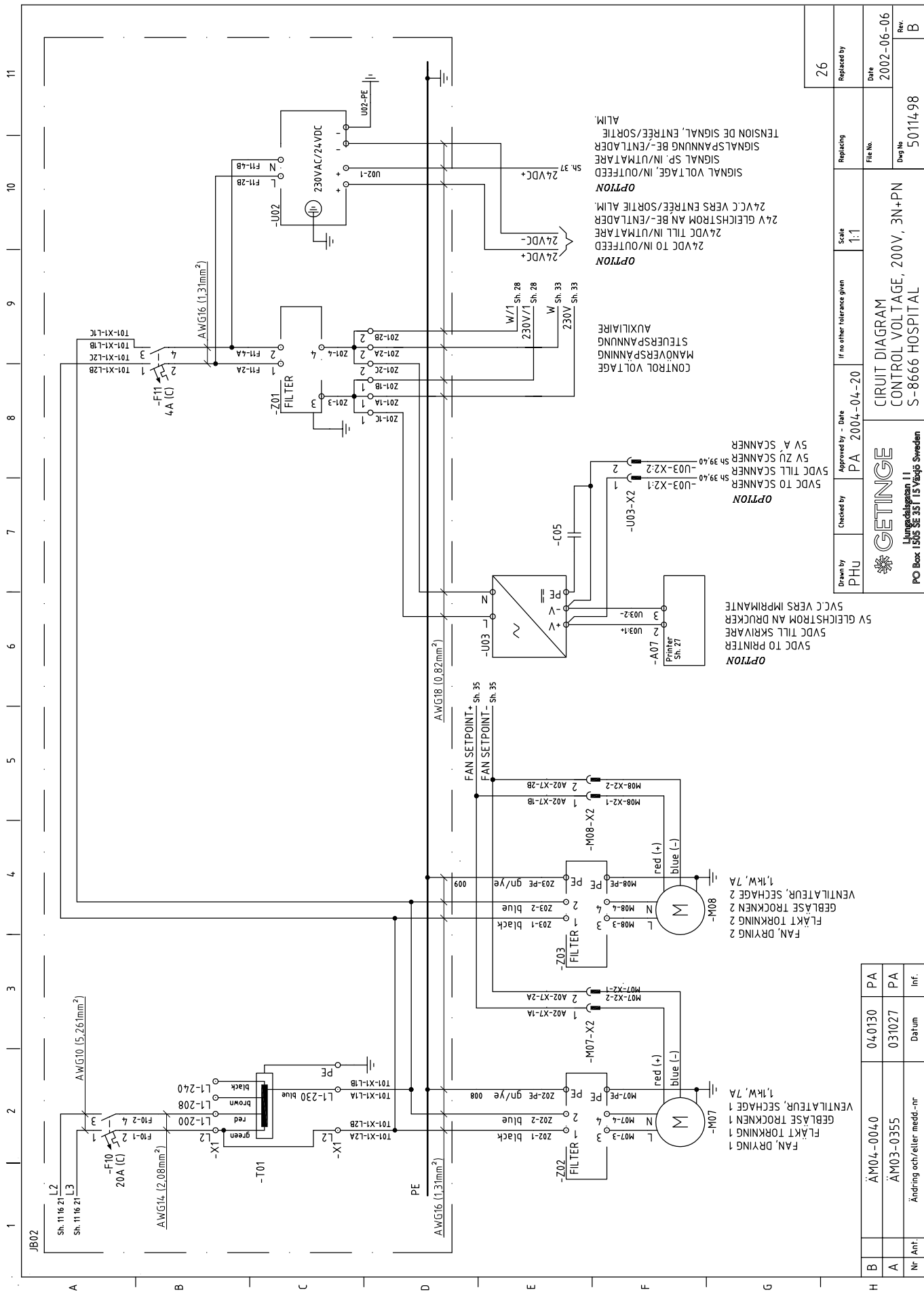
GETINGE
Helsingborg II
PO Box 1305 SE-351 13 Väsby Sweden

CIRCUIT DIAGRAM
CONTROL VOLTAGE, 240V, 3N+PN
S-8666 HOSPITAL

Drawn by	Checked by	Approved by	Date	If no other tolerance given	Scale	Replacing	Replaced by
PHU	PA	PA	2004-04-20		1:1		

File No.	Date	Rev.
5011495	2002-06-06	B





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Nr	Ändring och/eller medd.-nr	Datum	Inf.

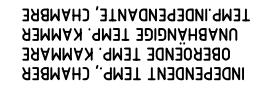
GETINGE
Helsingborg II
PO Box 1305 SE-351 13 Västgö Sweden

CIRCUIT DIAGRAM
CONTROL VOLTAGE, 200V, 3N+PN
S-8666 HOSPITAL

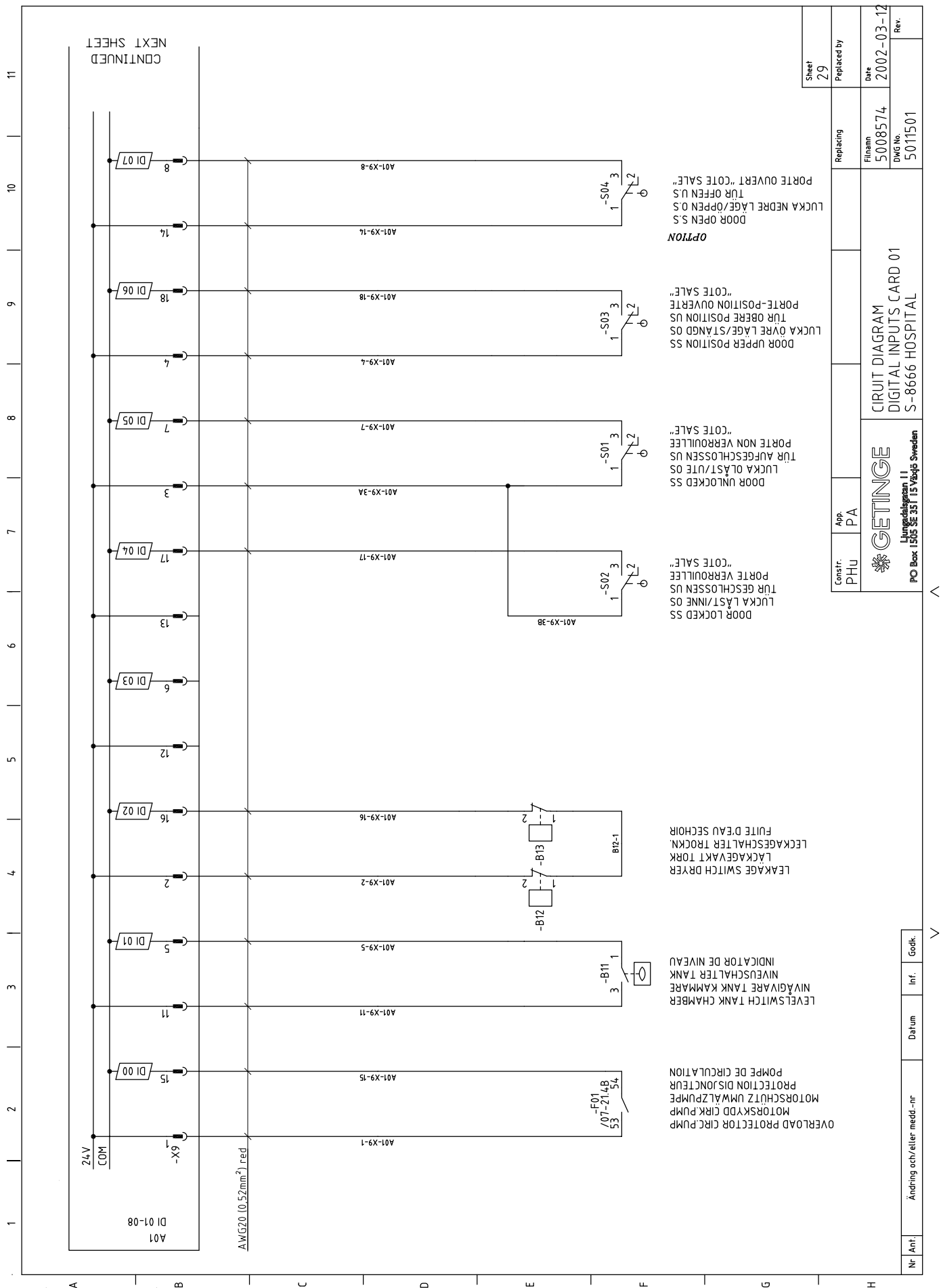
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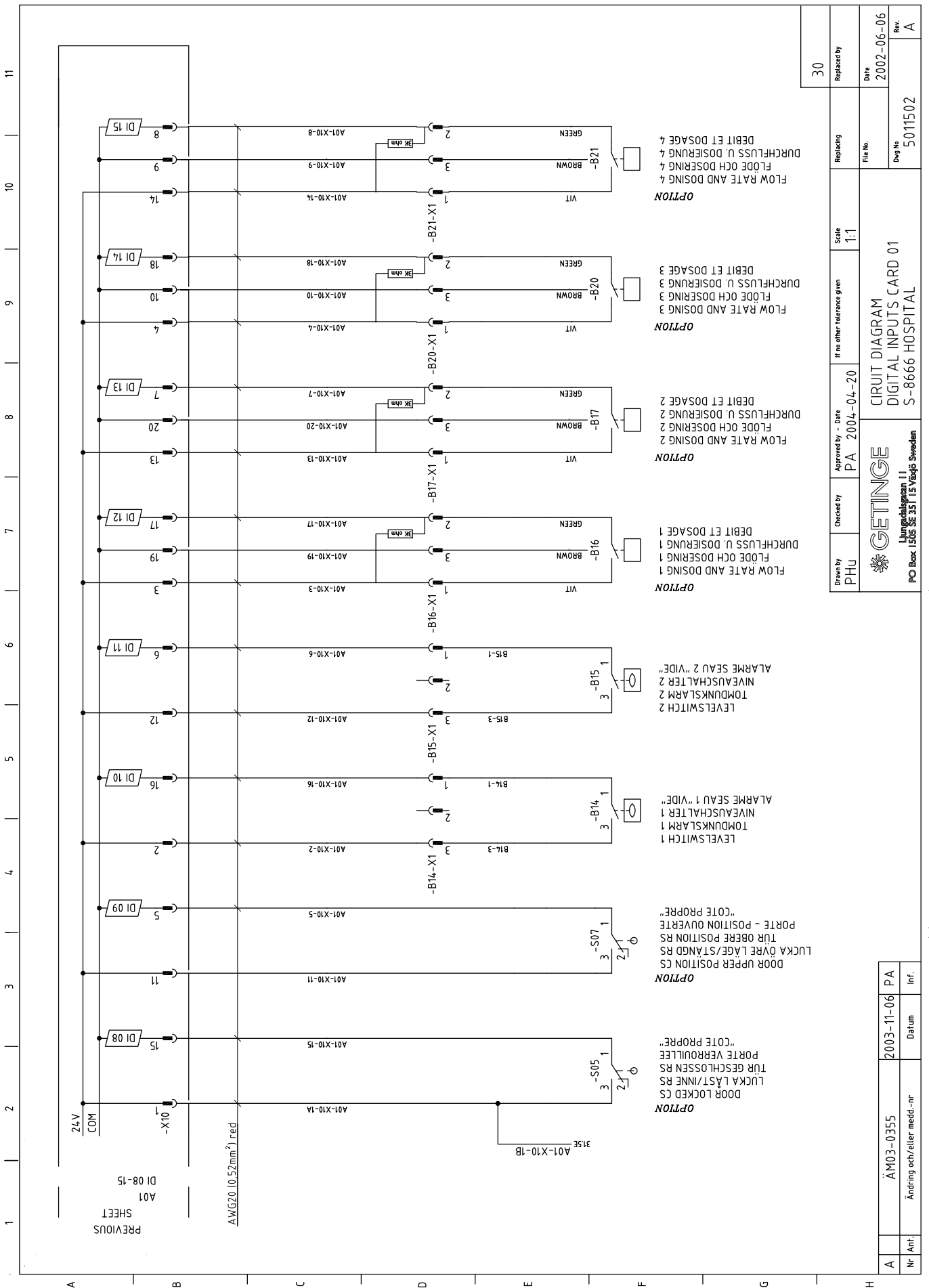
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Dwg No.	5011498	Rev.	B

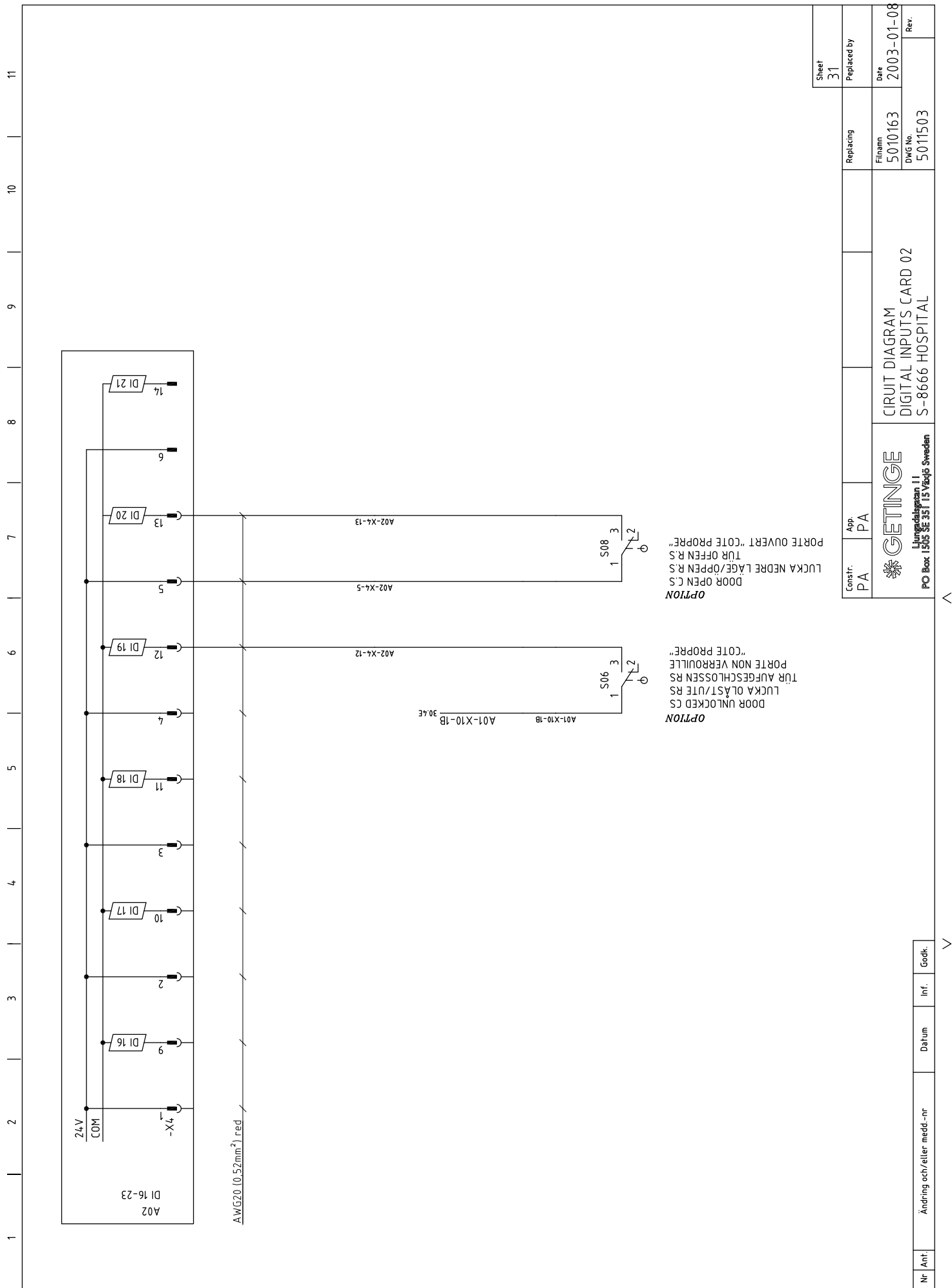
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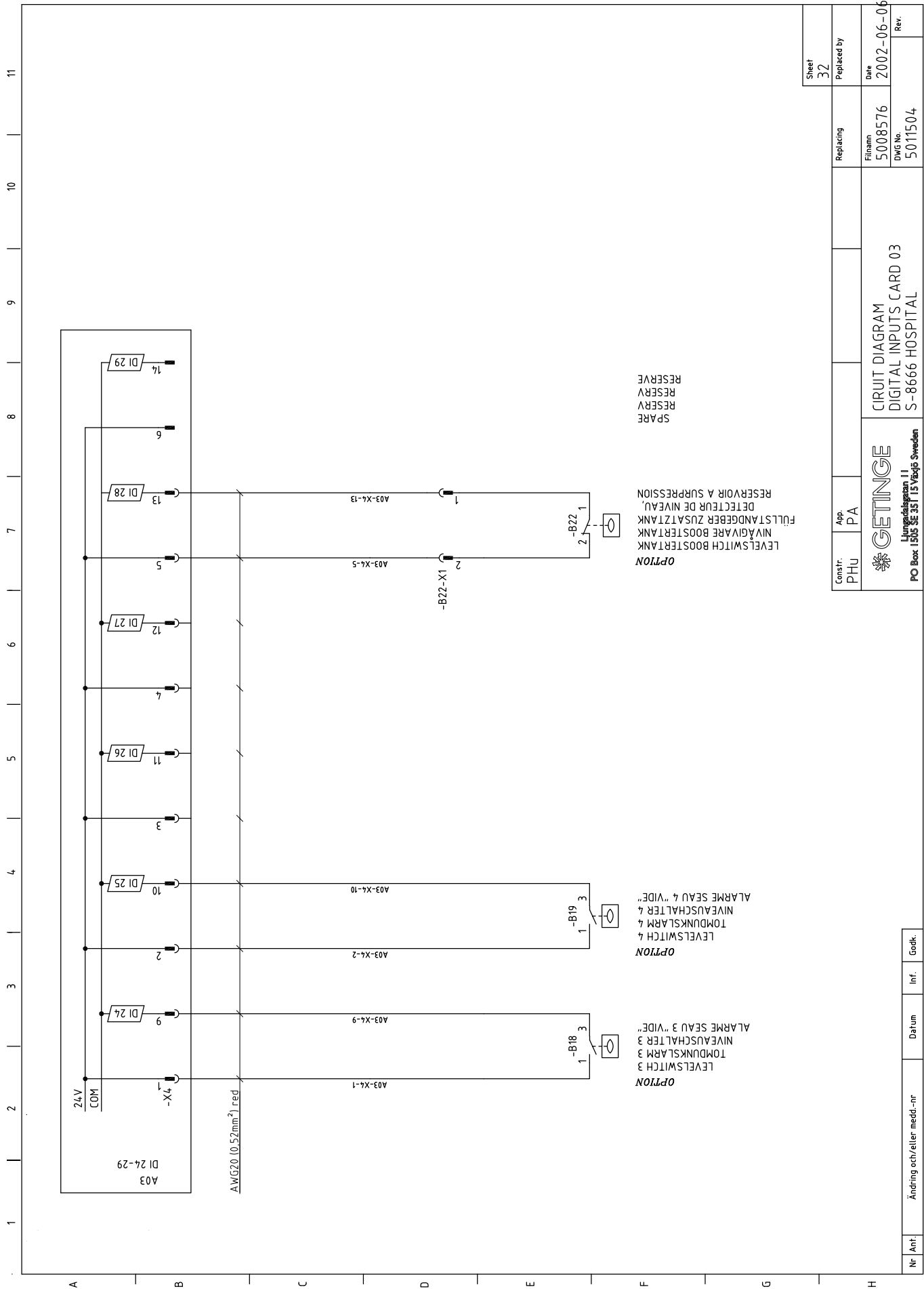


Drawn by PHU	Checked by PA	Approved by - Date 2004-04-20	If no other tolerance given Scale 1:1	Replishing	Replaced by
 HUNGEDIGGÅRDEN 11 PO Box 1505 SE 351 15 Växjö Sweden			File No.	Dwg No 5011500	Rev. A
				Date 2002-06-06	







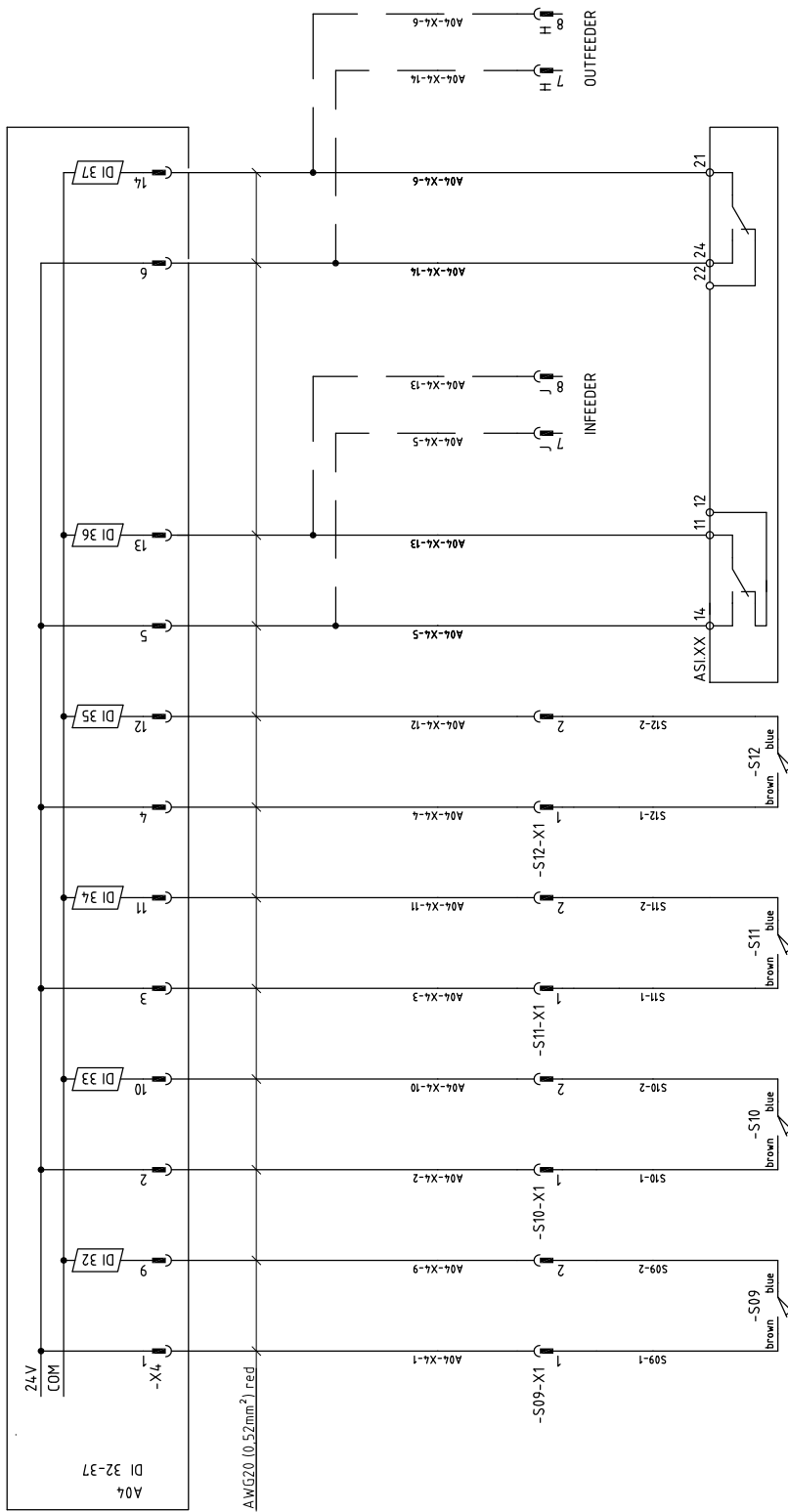


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Constr.	PHU	App.	PA	GETINGE Långskålen II PO Box 1505 SE-351 15 Västra Sweden														

Nr	Anf	Ändring och/eller medd-nr	Datum	Inf.	Godk.
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1 2 3 4 5 6 7 8 9 10 11



OPTION
TROLEY INDICATION-PROGRAM OPTION
WAGENANZEIGE PROGRAMWahl
INDICATION CHARIOT-OPTION PROGRAMME

OPTION
TROLEY INDICATION-PROGRAM OPTION
WAGENANZEIGE PROGRAMWahl
INDICATION CHARIOT-OPTION PROGRAMME

OPTION
TROLEY INDICATION-PROGRAM OPTION
WAGENANZEIGE PROGRAMWahl
INDICATION CHARIOT-OPTION PROGRAMME

OPTION
TROLEY INDICATION-CORRECT POSITION
WAGENANZEIGE KORR. POS.
INDICATION CHARIOT- POSITION CORRECTE

OPTION
AGS INFEEED READY
AGS BELADUNG KLAR
ENTREE ALIM. PRETE

OPTION *
INFEEED READY
INMATARE KLAR
BELADER FERTIG

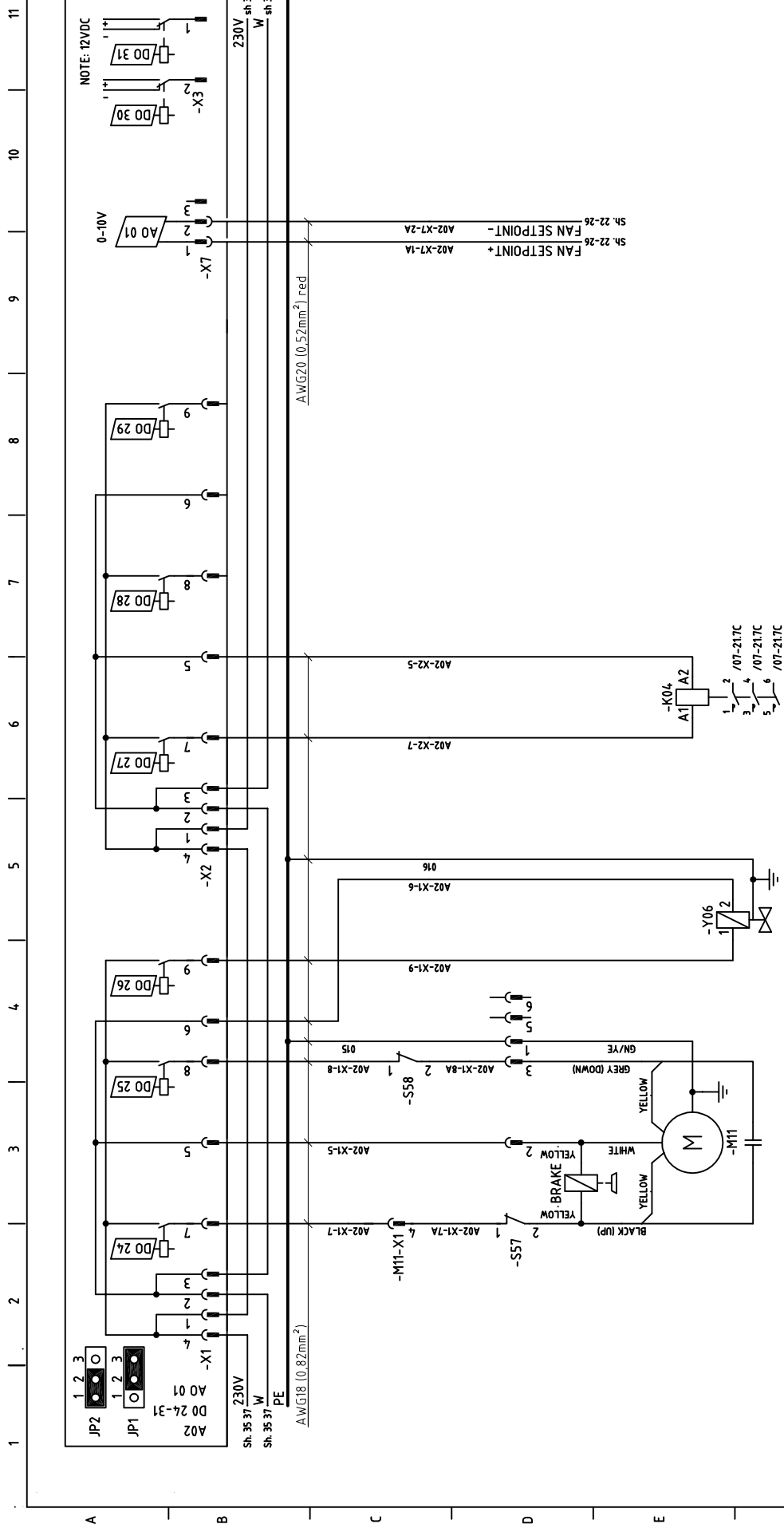
OPTION
AGS OUTFEED READY
AGS UTMATNING KLAR
AGS ENTLADUNG FERTIG

OPTION *
OUTFEED READY
UTMATARE KLAR
ENTLADER FERTIG

x) ALTERNATIVE CONNECTION

Drawn by PHU	Checked by	Approved by - Date PA 2004-04-20	If no other tolerance given Scale 1:1	Replacing	Replaced by 33
CIRCUIT DIAGRAM DIGITAL INPUTS CARD 04					
GETINGE Långgata 11 PO Box 1505 SE 351 15 Västra Sweden					
5011505					
Date 2002-06-06					
Rev. A					

A	ÄM04-0040	040130	PA
Nr	Ändring och/eller medd.-nr	Datum	Inf.



OPTION
MOTOR - DOOR SC.S.
MOTOR - LUCKA R.S.
MOTOR - TUR R.S.
MOTEUR - PORTE "COTE PROPRE"

OPTION
SOLENOID VALVE, WASTE COOLING
MAGNETIC VALVE, WASTE COOLING
MAGNETIC VALVE, REFRIGERANT
ELECTROVALVE, REFRIGERANT
DECKETS

HEATING - DRYING UNIT
VÄRME - TORKNING 1
HEIZUNG - TROCKNER
SECHOIR

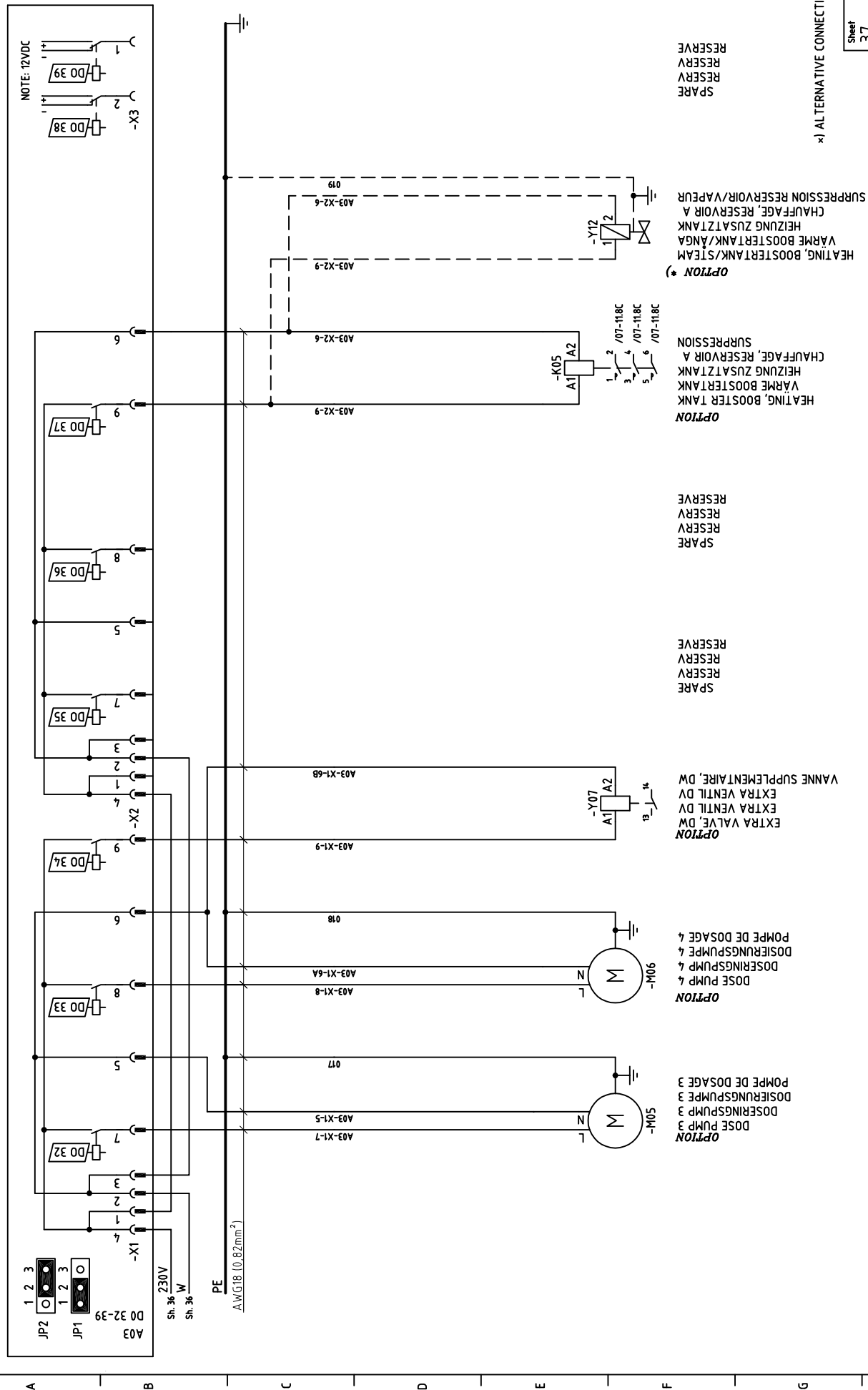
RESERVED FOR FAN CONTROL
RESERVERAT FÖR FLÄKSTYRN.
RESERVIERT FÜR GEBLÄSESTEUER
RESERVE A LA COMMANDE DU
VENTILATEUR

RESERVED FOR FAN CONTROL
RESERVERAT FÖR FLÄKSTYRN.
RESERVIERT FÜR GEBLÄSESTEUER
RESERVE A LA COMMANDE DU
VENTILATEUR

CONTROL, FANS
STYRNING FLÅKTAR
GEBLÄSSESTEUERUNG
COMMANDE, VENTILATEURS

SPARE
RESERV
RESERV
RESERV
RESERVE

Mr	Ändring och/eller medd.-nr	Datum	Inf.	Godk.
 GETINGE Långvagnsgatan 11 PO Box 1505 SE 351 15 Värdö Sweden Constr. PHU App PA CIRCUIT DIAGRAM DIGITAL OUTPUTS CARD 02 S-8666 HOSPITAL Replacing Replaced by Date 2002-06-06 Filnamn 5008580 DWG No. 5011508 Rev. 				
SOLE MAGNETIC ELECT. RESE RESE RESE Sheet 36				



∞) ALTERNATIVE CONNECTION

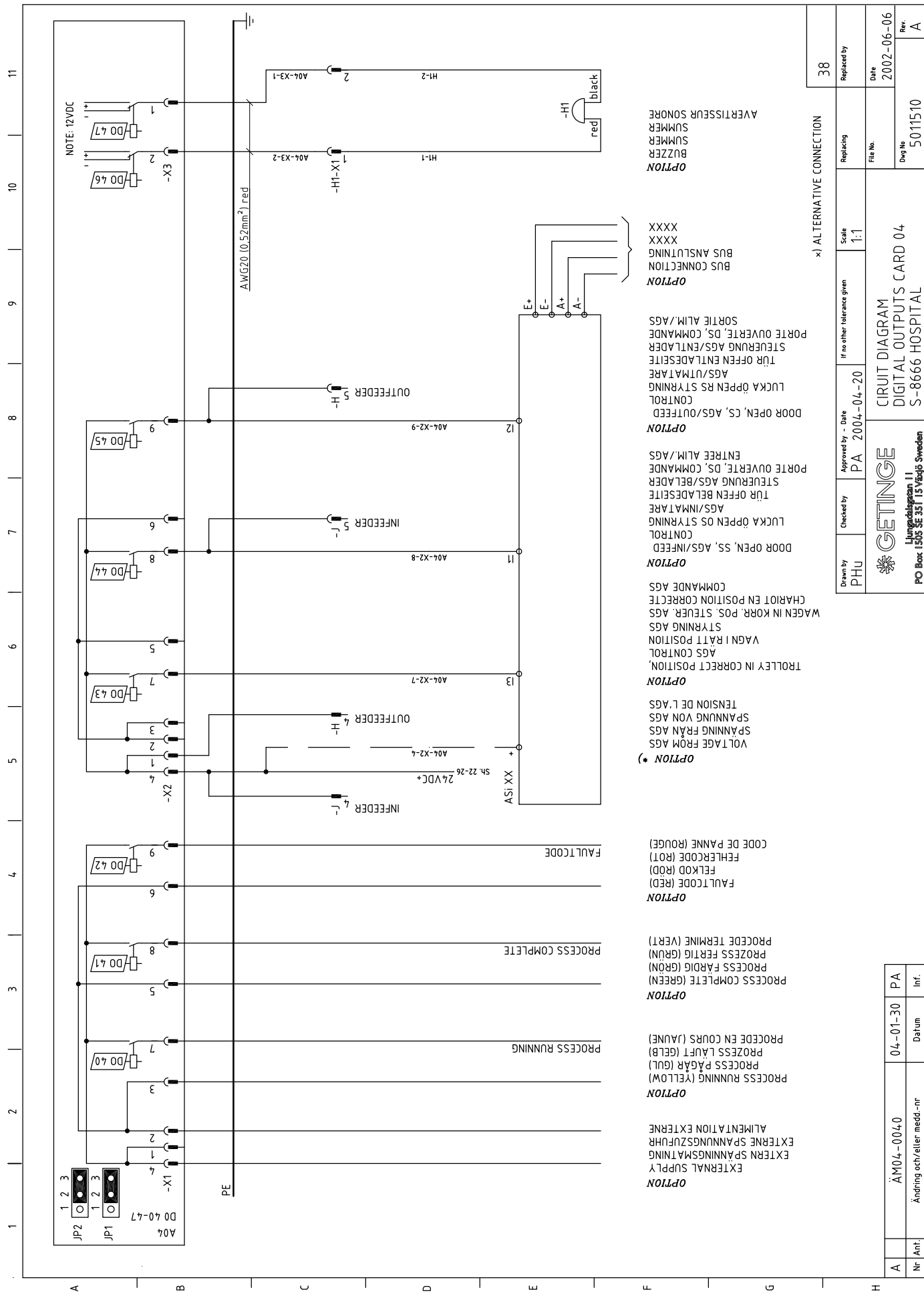
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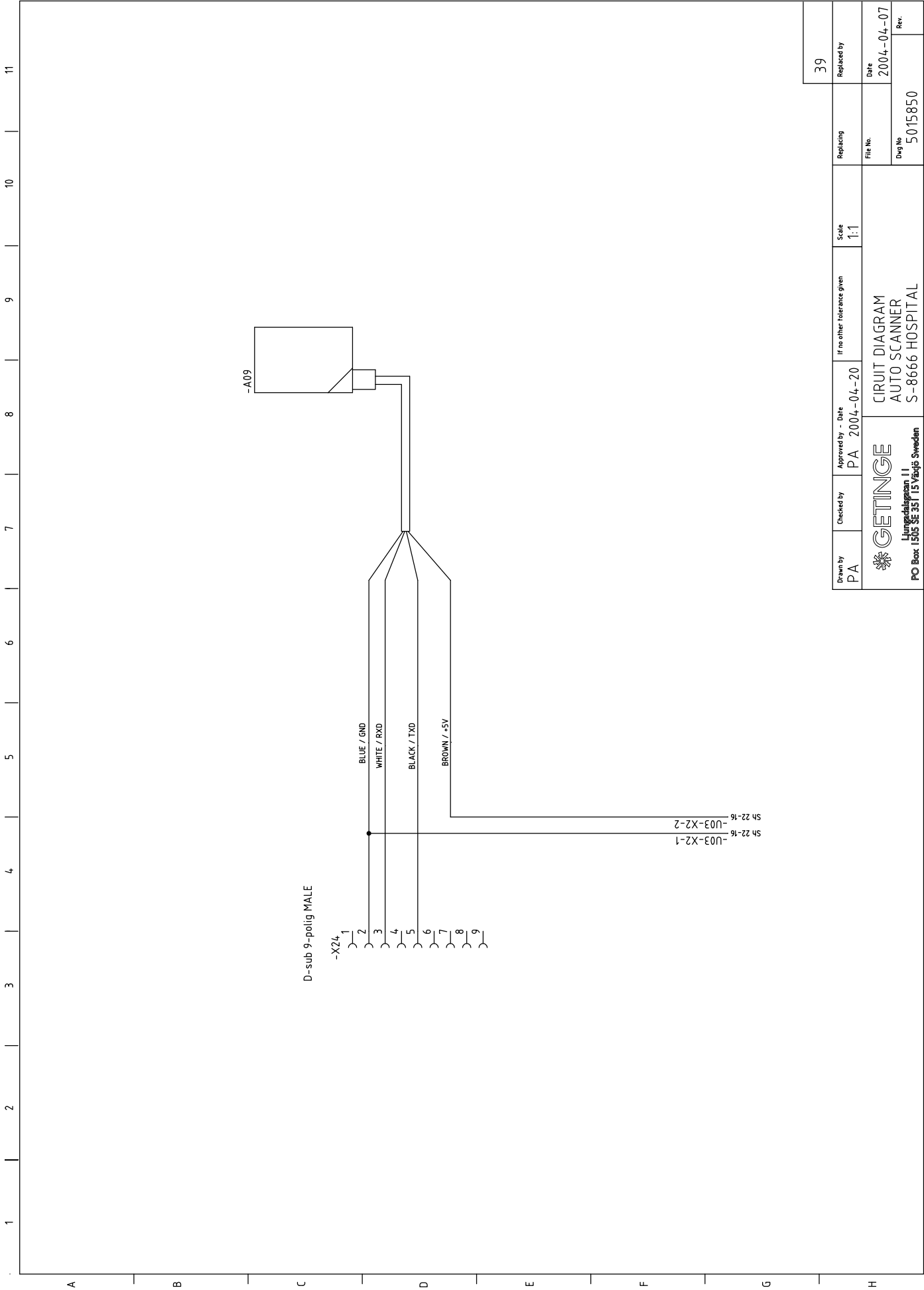
Constr. PHU	App. PA				
		CIRCUIT DIAGRAM DIGITAL OUTPUTS CARD 03			
		Filnaam 5008581			
		DWG No. 5011509			
		Date 2002-06-06			
		Replaced by Rev.			

SHEET
 37

HE
 SURP

Ljungedalsgatan 11
 PO Box 1505 SE 351 15 Växjö Sweden





Drawn by PA	Checked by	Approved by - Date PA 2004-04-20	If no other tolerance given	Scale 1:1	Replacing	Replaced by
 GETINGE Ljungaålsgränd 11 PO Box 1505 SE 351 15 Västra Sweden					File No.	Date 2004-04-07
			Dwg No. 5015850	Rev.		

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^

This product is manufactured by:
GETINGE DISINFECTION AB, Ljungadalsgatan 11, Box 1505, 351 15 Växjö, Sweden

